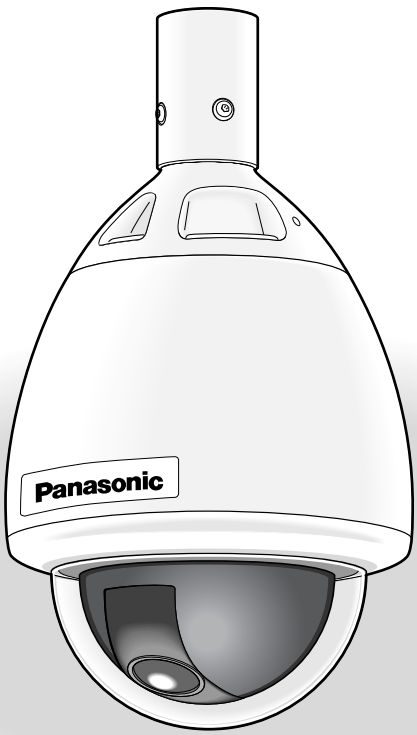
Panasonic

Colour CCTV Camera
Operating Instructions

Model No. WV-CW860
WV-CW864E



ENGLISH
DEUTSCH
FRANÇAIS
ESPAÑOL
ITALIANO

Before attempting to connect or operate this product,
please read these instructions carefully and save this manual for future use.

ENGLISH VERSION

We declare under our sole responsibility that the product to which this declaration relates is in conformity with the standards or other normative documents following the provisions of Directives EEC/73/23 and EEC/89/336.

Wij verklaren als enige aansprakelijke, dat het product waarop deze verklaring betrekking heeft, voldoet aan de volgende normen of andere normatiefve dokumenten, overeenkomstig de bepalingen van Richtlijnen 73/23/EEC en 89/336/EEC.

Vi erklærer os eneansvarlige for, at dette produkt, som denne deklaration omhandler, er i overensstemmelse med den følgende standarder eller andre normative dokumenter i følge bestemmelserne i direktivene 73/23/EEC og 89/336/EEC.

Vi deklarerar härmed värt fulla ansvar för att den produkt till vilken denna deklaration hänvisar är i överensstämmelse med standarddokument, eller andra normativa dokument som framstölls i Direktiv 73/23/EEC och 89/336/EEC.

Ilmoitamme yksinomaisella vastuullamme, että tuote, jota tämä ilmoitus koskee, noudattaa seuraavia standardeja tai muita ohjeellisia asiakirjoja, jotka noudattavat direktiivien 73/23/EEC ia 89/336/EEC. säädöksiä.

Vi erklærer oss alene ansvarlige for at produktet som denne erklæringen gjelder for, er i overensstemmelse med følgende normer eller andre normgivende dokumenter som fælger bestemmelsene i direktiven 73/23/EEC og 89/336/EEC.

CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN
CAUTION:
TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK), NO USER SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

Power disconnection. Unit with or without ON-OFF switches has power supplied to the unit whenever the power cord is inserted into the power source; however, the unit is operational only when the ON-OFF switch is in the ON position. Unplug the power cord to disconnect the main power for all unit.

FOR YOUR SAFETY PLEASE READ THE FOLLOWING TEXT CAREFULLY.

WARNING
THIS APPARATUS MUST BE EARTHED

IMPORTANT

The wires in this mains lead are coloured in accordance with the following code.

Green-and-yellow:	Earth
Blue:	Neutral
Brown:	Live

As the colours of the wire in the mains lead of this appliance may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows.

The wire which is coloured **green-and-yellow** must be connected to the terminal in the plug which is marked with the letter **E** or by the earth symbol ⏚ or coloured **green** or **green-and-yellow**.

The wire which is coloured **blue** must be connected to the terminal in the plug which is marked with the letter **N** or coloured **black**.

The wire which is coloured **brown** must be connected to the terminal in the plug which is marked with the letter **L** or coloured **red**.

The serial number of this product may be found on the top of the unit.
You should note the serial number of this unit in the space provided and retain this book as a permanent record of your purchase to aid identification in the event of theft.

Model No. _____

Serial No. _____

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ENGLISH

PREFACE

The colour cameras WV-CW860 and WV-CW864E are designed for installation in an outdoor video surveillance system.
The camera incorporates the digital signal processor, pan/tilt mechanism, x22 zoom lens and RS485 communication interface in a compact outdoor enclosure.

A newly developed 1/4" CCD makes the camera suitable for use under extremely low illumination conditions as well as in daylight.
Setup menus allow the camera to perform surveillance tasks by such means as motion detection, digital flip, patrol-learn and privacy zones.

FEATURES

- Outdoor enclosure based on IP66* of IEC60529 standard
  * Waterproof structure resistant to powerful jetting as classified by the International Protection code
- Provided with built-in heater and fan
- High quality picture of 752 x 582 pixels
- Minimum illumination of 0.5 lx for colour and 0.03 lx for black/white surveillance
  (at AGC ON (HIGH), SENS UP x 2)
- Digital flip allows a 180° tilting to trace objects passing under the camera.
- Privacy zone feature enables users to veil unwanted zones.
- Protocol adaptability to Panasonic's protocol
- Auto black/white mode enables the camera to switch between C/L and B/W in response to input lights.
- A run of manual operations is memorized in the patrol-learn mode for repetitive use in future.
- Built-in digital motion detector and alarm outputs
- 64 preset positions
- 360° panning at a rotation speed of 300°/s
- Sync selectable between internal, line-lock or VD2
- Automatic gain control circuit
- Image hold
- Digital noise reduction effect

■ Camera Cleaning

Even if this function is used, noise may be produced on the monitor screen, or the preset position may deviate in the course of prolonged use.
In such cases, activate the refresh mode on the special 2 menu. (See page 46.)

To use this camera with the WJ-SX550B Matrix Switcher, set the auto cleaning function activated on the Matrix Switcher side, then clean WV-CW860/WV-CW864E one time a day.

■ Preset Data Uploading or Downloading

To download the preset data from the camera to the controller or upload the downloaded data to the camera, set the following functions to OFF.
Downloading or uploading the data may not work normally if these functions are set to ON.

- Alarm (See page 32.)
- Preset alarm (See page 35.)
- Cleaning (See page 34.)
- Motion detection (See page 43.)
- Auto mode (See page 23.)
- Self return (See page 22.)

Aim the camera at a motionless object such as a wall, if possible, to download or upload the preset data.

Note: Take notice of the following when uploading the downloaded data to the camera.

- Preset positions may vary. If a preset position has deviated, delete the preset position and set the correct preset position newly.
- Uploading of WV-CW860/WV-CW864E series preset data to other models (e.g. WV-CS850A series) may cause an error and failure of the uploading process.

PRECAUTIONS

1. **Do not attempt to disassemble the camera.**
   To prevent electric shock, do not remove screws or covers.
   There are no user-serviceable parts inside.
   Ask a qualified service personnel for servicing.

2. **Handle the camera with care.**
   Do not misuse the camera. Avoid striking, shaking, etc. The camera could be damaged by improper handling or storage.

3. **Consult an expert on the load bearing capacity of the installation surface and structure. If the surface is not strong enough, the camera may fall down. Refer to the product specifications for weights.**

4. **Do not install the camera in places where it will be exposed to corrosive gasses, e.g., in chemical plants, seaside, at swimming pools or the like. Otherwise corrosion of the bracket may cause the camera to fall down.**

5. **Use the fall-prevention wires to reduce the risk of the camera falling down.**
   Do not detach the fall-prevention wire securing the camera. Otherwise the camera could fall down, causing injury to persons and damage to the camera.

6. **Do not use strong or abrasive detergents when cleaning the camera body.**
   Use a dry cloth to clean the camera when it is dirty.
   When the dirt is hard to remove, use a mild detergent and wipe gently. Care should be taken not to scratch the dome cover when wiping it.
   Afterwards, wipe off the remaining detergent with a dry cloth.

7. **Never aim the camera at the sun.**
   Whether or not the camera is in use , never aim it at the sun or other extremely bright objects. Otherwise, blooming or smear may be caused.

8. **Never aim the camera at strong light sources for an extended period of time.**
   Alight source such as a spot light causes burn-in on the display screen. Failure to observe this may cause the image to become discoloured due to deterioration of the colour filter in the CCD.

9. **Do not aim the camera at the same object for a long time.**
   Burn-in of an image may be caused on the fluorescent screen of CRT.

10. **Do not install this camera upside down.**
    This camera is designed for mounting on the ceiling or wall. Using this camera installed upside down, for example, mounted on the floor, may cause malfunction.

11. **If "OVER HEAT" appears on the monitor screen.**
    The temperature inside the camera exceeds the normal level because of a malfunction of the cooling fan etc. If this happens, turn the power off immediately and refer servicing to qualified service personnel.

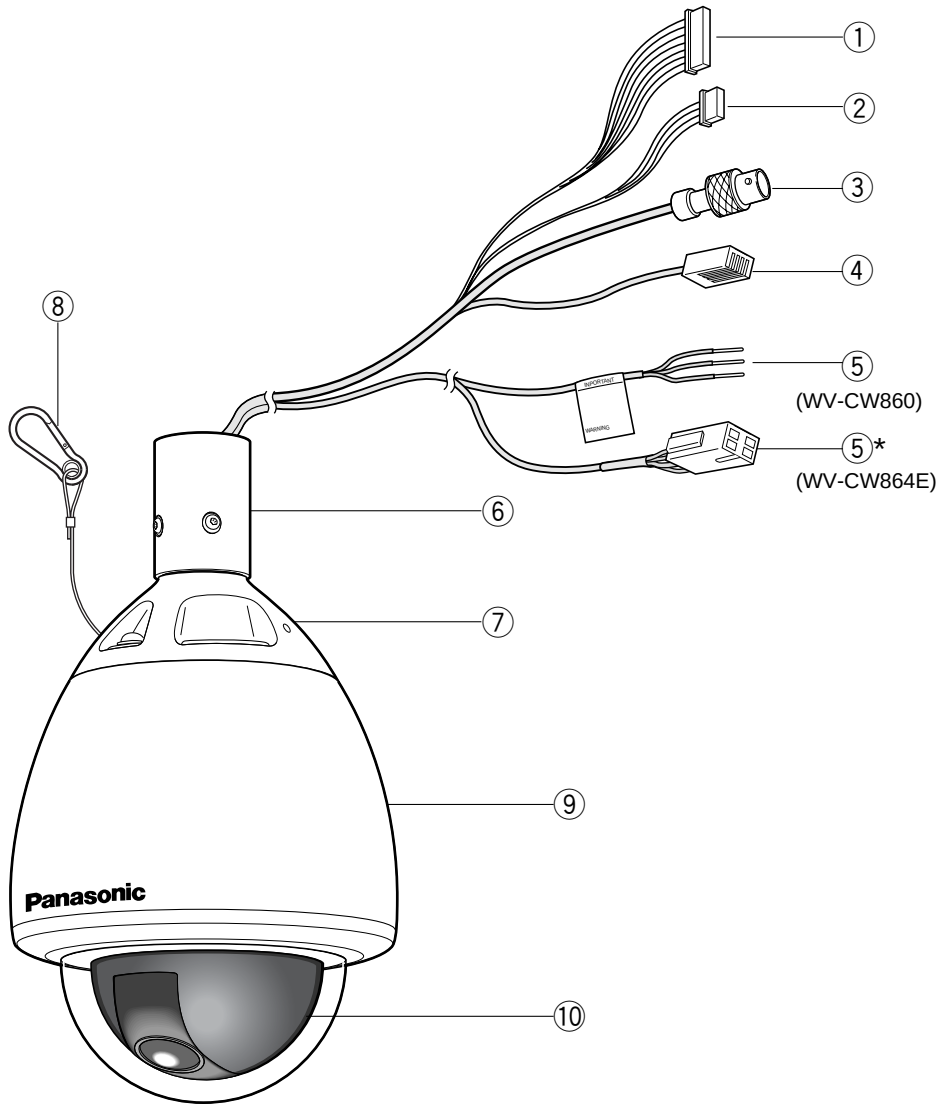
12. **Do not operate the camera beyond the specified temperature, humidity or power source ratings.**
    Use the camera under conditions where temperatures are between –30 °C and +50 °C (–22 °F to 122 °F), preferably –10 °C (14 °F) to +40 °C (104 °F), and humidity is below 90 %.
    The input power source is 220 V to 240 V AC for WV-CW860 or 24 V AC for WV-CW864E.
    We recommend that you install the optional sun shield when the camera is exposed to direct sunshine where the ambient temperature exceeds +40 °C (104 °F).
    Picture quality and camera performance are not guaranteed until the inside temperature has risen to –10 °C (14 °F) after turning on the camera in a cold atmosphere. Wait until the built-in heater warms up the unit and the lens and pan/tilt head start searching their origins.

13. **Consumables**
    Parts having contacts such as the lens-drive motors, cooling fan motor and slip-rings inside the camera are subject to wear with time. Please ask the nearest service centre about replacement and maintenance of such parts.

14. **Do not install the camera in places subject to vibrations.**
    Shock absorbers should be installed together with the camera in such places as bridges, airplanes, vehicles, or near vibration sources.

- Matsushita Electric Industrial Co., Ltd. herewith declares that it will not be liable for any damage, whether direct or indirect, caused by using the product for business transaction or security, or malfunctioning of this product.

CONSTRUCTION



① **Alarm Input Connector**

② **Alarm Output Connector**

③ **Video Output Connector**

④ **Data Port**

⑤ **Power Cord for WV-CW860**

⑤*** Power Cord for WV-CW864E**

⑥ **Attachment Pipe**

⑦ **Upper Base**

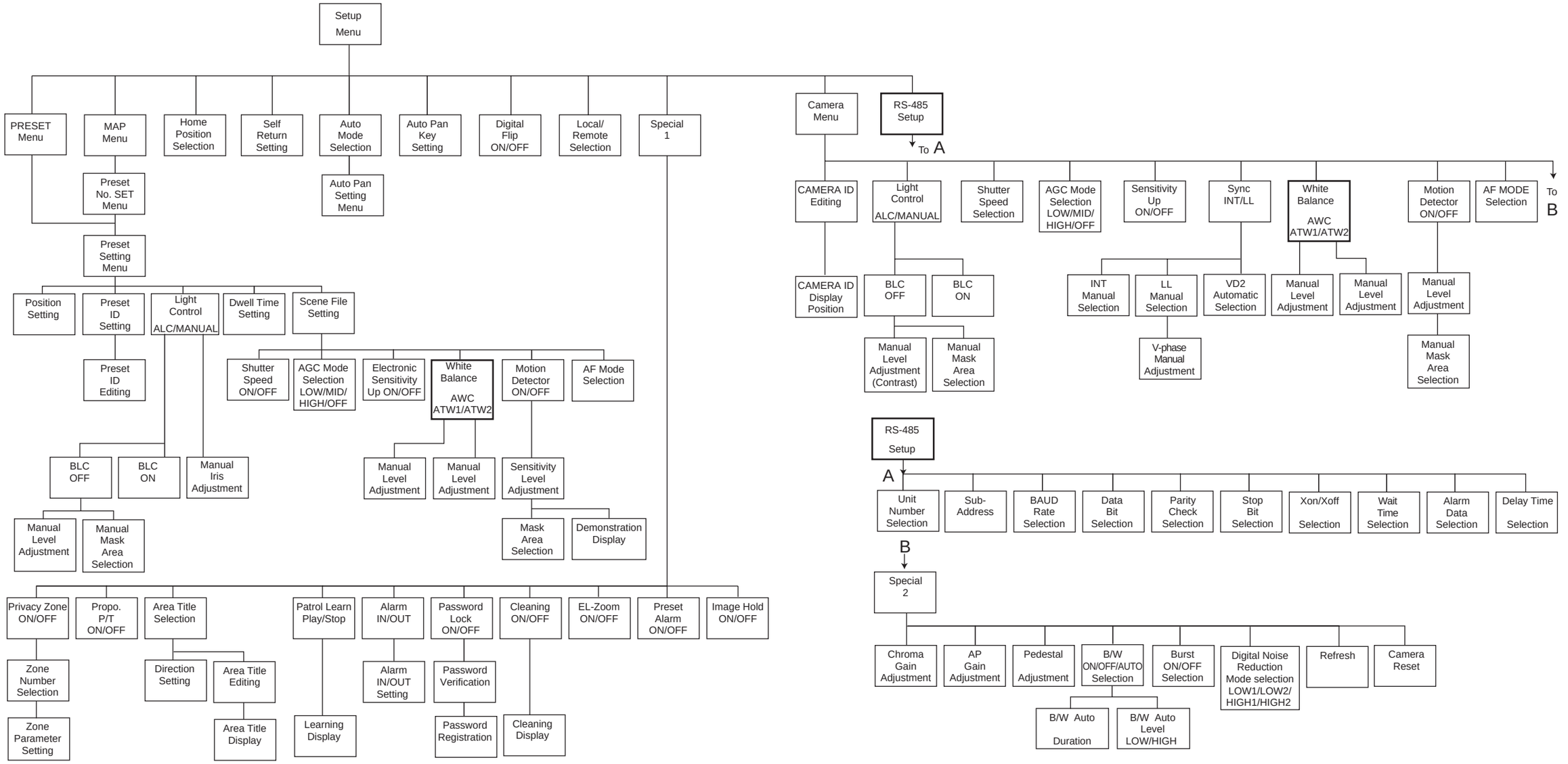
⑧ **Fall Prevention Wire**

⑨ **Enclosure**

⑩ **Dome**

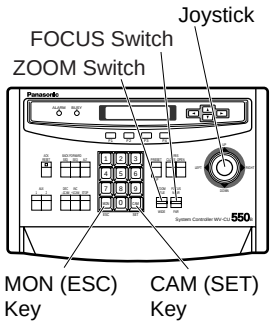
Setup Menu

Setup menus are shown in the diagram below. You can adapt the camera to your requirements by setting up the respective items in these menus. Menus are built in a hierarchical structure, from the Setup menu at the top to Manual Mask Area Selection at the bottom.
These menus are described in the following pages for reference prior to setup.
Switches, keys and the joystick are used in the setup operations.

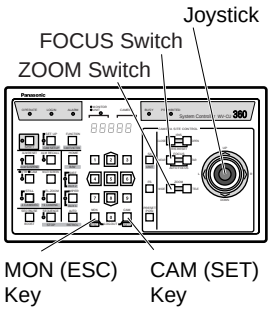


The keys (switches) to use for setup are shown in the table below. The joystick on the connected controller may also be used for setup. The table also shows the functions versus the operations of the individual controllers. For details, see the manual for the controller to be used. Switches and controls are abbreviated as SW and CTRL respectively in the table.

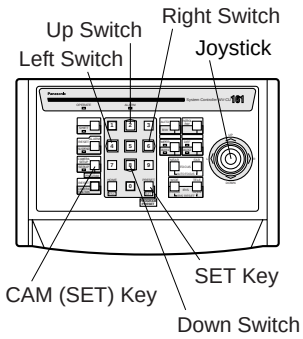
[WV-CU550B]



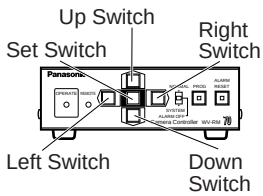
[WV-CU360]



[WV-CU161]



[WV-RM70]



Function/Controller	WV-CU550B	WV-CU360	WV-CU161	WV-RM70
Open CAM SETUP	See page 16	CAM SETUP key (for 2 seconds or more)	CAMERA SETUP key (for 2 seconds or more)	See page 16
Close CAM SETUP	F4 key	CAM SETUP key (for 2 seconds or more)	CAMERA SETUP key (for 2 seconds or more)	PROG SW
Move the cursor	Joystick (←, ↑, ↓, →)	Joystick (←, ↑, ↓, →)	Direction SW (←, ↑, ↓, →)	Direction SW (←, ↑, ↓, →)
Select a parameter	Joystick (←, →)	Joystick (←, →)	Direction SW (←, →)	Direction SW (←, →)
Adjust the level	Joystick (←, →)	Joystick (←, →)	Direction SW (←, →)	Direction SW (←, →)
Move the camera direction	Joystick (←, ↑, ↓, →)	Joystick (←, ↑, ↓, →)	Joystick (←, ↑, ↓, →)	Direction SW (←, ↑, ↓, →)
Zoom & Focus	ZOOM CTRL & FOCUS CTRL	ZOOM CTRL & FOCUS CTRL	ZOOM CTRL & FOCUS CTRL	Direction SW (←, ↑, ↓, →)
Enter the setting	CAM (SET) key	CAM (SET) key	CAM (SET) key	SET SW
Open a submenu	CAM (SET) key	CAM (SET) key	CAM (SET) key	SET SW
Enter CAM ID & PRESET ID display position	MON (ESC) key	MON (ESC) key	MON (ESC) key	SET SW (for 2 seconds or more)
Enter MASK setting	MON (ESC) key	MON (ESC) key	MON (ESC) key	SET SW (for 2 seconds or more)
All Reset	F3 key	4+5+6 key (for 2 seconds or more)	4+5+6 key (for 2 seconds or more)	R+SET+L SW (for 2 seconds or more)
Open Special 2	F2 key	4+6 key (for 2 seconds or more)	4+6 key (for 2 seconds or more)	R+L SW (for 2 seconds or more)

Notes:

- A changed parameter is entered only when you move the cursor to another item or open a new menu. If you close the setup menu without either of the above actions, the changed parameter will not be entered.
- Setting procedures on the following pages are described on the assumption that the camera is used with the WJ-SX550B Matrix Switcher and WV-CU550B System Controller.

■ Setup Menu Description

● Presetting

(1) Position (POSITION SET)

Aligns the camera position and focal point by panning, tilting, zooming and focusing.
See page 17 for the setting.

(2) Preset Identification (PRESET ID)

Assigns the name for preset IDs (identification of up to 16 alphanumeric characters) and can be switched on or off on the monitor screen.
See page 19 for the setting.

(3) Light Control (ALC/MANUAL)

Selects the ALC or MANUAL mode for adjusting the lens iris.
See page 20 for the setting.

(4) Dwell Time (DWELL TIME)

Displays the picture at each camera position for the selected duration.
You can select a preset duration from the menu.
See page 21 for the setting.

(5) Scene File (SCENE FILE)

Stores up to 10 files.
Each file has a set of detailed parameters for the shutter speed, AGC, electronic sensitivity enhancement, white balance, motion detector and AF mode. The scene files can be recalled later to reproduce the parameter settings under the same conditions as stored in the files.
See page 21 for the setting.

● Home Position (HOME POSITION)

The home position is the camera's basic position.
The camera returns to this position automatically after a specific time.
Following a manual operation. This setting functions only when AUTO MODE is OFF.
See page 22 for the setting.

● Self Return (SELF RETURN)

Self-return is the time-out parameter for returning to the home position.
In ON position, the camera returns to AUTO MODE after a specific time following a manual operation.
See page 22 for the setting.

● Auto Mode (AUTO MODE)

The auto mode is used for setting the movement of the camera.
You can select one of four automatic operation modes and one manual operation mode as follows:
OFF: No automatic operation. The camera can be operated only manually.
SEQ: The camera operates in the sequence of preset positions in numerical order.
SORT: The camera operates in the sequence of preset positions counterclockwise from Pan Starting Point.
AUTO PAN: The camera automatically turns within the preset panning range.
PATROL: The camera operates in the patrol-learn function.
See page 23 for the setting.

● Auto Pan Key (AUTO PAN KEY)

This setting assigns the SEQ, SORT, AUTO PAN or PATROL (PLAY) mode to the AUTO key on the controller.
After this setting, the AUTO key performs as assigned.
Note: The AUTO PAN LED on the controller does not light if a mode other than AUTO PAN is assigned.

● Digital Flip (DIGITAL FLIP)

In ON position, digital flip widens the range to 0° - 180° by reversing horizontal and vertical scanning when the camera is tilted through the 90° (downright position if the camera is installed on a ceiling). If PAN LIMIT is in ON position, the tilt range is narrowed from 180° to 90°.

● Local/Remote (LOCAL/REMOTE)

This setting determines whether the camera continues or stops the ongoing auto operation when the controller is turned off.
LOCAL: The camera continues operating in the auto mode when the controller is turned off.
REMOTE: The camera stops operating in the auto mode approx. 1 minute after the controller is turned off.
See page 26 for the setting.

● Special 1 Menu

(1) Privacy Zone (PRIVACY ZONE)

This setting is used for masking unwanted zones, hiding them from display on the monitor screen. Set PASSWORD LOCK to OFF(DIS) if you want to change this setting.
Up to 8 zones can be registered. Submenus are provided for zone number selection and parameter setting. See page 26 for details.

(2) Proportional Pan-Tilt Speed (PROPO. P/T)

If ON is selected, the pan-tilt speed changes automatically corresponding to the zoom ratio. For example, the pan-tilt speed slows down when the camera zooms in. See page 28 for details.

(3) Area Title (AREA TITLE)

Up to 8 area titles can be assigned to specific scenes on the DIRECTION (NESW) menu or by alphanumeric (USER) assignment. The area title is displayed under the camera ID on the monitor screen when the camera turns to a position that has been assigned an area title. See page 28 for details.

(4) Patrol-learn and Patrol Play (PATROL)

A set of manual operations is stored (LEARN), reproduced (PLAY) or turned inactive (OFF). Patrol operation stops if SEQ, SORT or AUTO PAN is set to AUTO MODE on the SETUP menu. See page 30 for details.

(5) Alarm Input/Output (ALARM IN/OUT)

Alarm input and output are set on a submenu. Preset positions are assigned to ALARM IN 1 to 4. When alarm inputs are supplied via the alarm input connector, the camera turns to the respective positions. Then the camera sends output signals via the alarm output connector or the coaxial cable to the external devices. The B/W mode may be chosen if light is insufficient. CNT-CLS (Contact Closure) 1, 2 and COAX ALM OUT are used for alarm output setting. See page 32 for details.

(6) Password Lock (PASSWORD LOCK)

This setting controls access to the privacy zone to be free or limited. If PASSWORD LOCK is set to ON, ON(DIS) or OFF(DIS) for PRIVACY ZONE appears on the SPECIAL 1 menu.

(7) Cleaning (CLEANING)

This is used for refreshing the electro-mechanical contacts built into the camera. Use this function for maintenance when the camera has been directed at a specific spot or panned over a specific range for a long time.

(8) Electronic Zoom (EL-ZOOM)

Up to 10-fold electronic zooming is available besides 22-fold optical zooming.

(9) Preset Alarm (PRESET ALM)

Alarm signals are output in the following cases if ON is selected.

- When a preset positioning sequence is completed while AUTO MODE is set to SEQ.
- When a preset positioning sequence is completed while AUTO MODE is set to SORT.
- When positioning to the starting point is completed while AUTO MODE is set to AUTO PAN.
- When the self-return function has returned the camera to its home position.
- When preset positioning is completed by manual operation.
- When positioning to the starting point is completed while PATROL is set to PLAY.

(10) Image Hold (IMAGE HOLD)

The camera picture remains as a still image on the monitor screen or until the camera reaches the preset position. This function is useful for surveillance via a local area network.

● Camera

(1) Camera Identification (CAMERA ID)

You can use the camera identification to assign a name to the camera. The camera ID consists of up to 16 alphanumeric characters. You can select whether to have the camera ID displayed on the monitor screen or not. See page 36 for the setting.

(2) Light Control (ALC/MANUAL)

You can select the mode for adjusting the lens iris. There are two modes as follows:

ALC: The lens iris is automatically adjusted according to the brightness of an object.
You can select one of two modes (BLC ON or BLC OFF) of backlight compensation.
Backlight compensation is available in the ALC mode. It eliminates strong background light which makes the camera picture dark such as a spotlight.

MANUAL: The lens iris is fixed at the value that you have set regardless of the brightness of an object.

- **ALC Mode with BLC ON**

An important object in a scene is usually placed in the centre of the monitor screen. By activating this feature, more photometric weight is given to the centre of the screen than to the edge of the screen (where bright backlight would most likely be located). In such a case, the object at the centre of the screen can be still clearly seen even though the backlight may vary.
See page 37 for the setting.

- **ALC Mode with BLC OFF**

This mode is effective when the main object in the scene is not located in the centre of the screen but a source of bright light is located near the centre of the scene. In this mode, the picture is divided into 48 areas that mask the light to keep the clarity of the picture.

Note: The result of field setup of the mask area and level adjustment is fed back (effected) to the lens iris control in ALC mode.

(3) Shutter Speed (SHUTTER)

You can select a shutter speed from among 1/50 (OFF), 1/120, 1/250, 1/500, 1/1 000, 1/2 000, 1/4 000, and 1/10 000 seconds.

See page 39 for the setting.

(4) Gain Control (AGC)

You can set the gain of an image to automatic adjustment [AGC ON (LOW, MID, HIGH)] or fixed (AGC OFF).

See page 39 for the setting.

(5) Electronic Sensitivity Enhancement (SENS UP)

The electronic sensitivity enhancement function varies the shutter speed to raise the sensitivity in low light conditions.

You can select the following shutter speeds for SENS UP.

1/25 seconds (x2), 1/12.5 seconds (x4), 1/8.3 seconds (x6), 1/5 seconds (x10), 1/3.1 seconds (x16), or 1/1.6 seconds (x32).

See page 39 for the setting.

There are two modes for SENS UP as follows:

AUTO: If you select x32, the sensitivity is raised automatically up to x32.

FIX: If you select x32, the sensitivity is raised to a fixed x32.

Notes:

- Moving objects will appear blurred when shot in electronic sensitivity enhancement mode since SENS UP is equivalent to reducing the shutter speed in a still picture camera.
- The horizontal and vertical resolution will be lowered in this mode.
- If the iris opening is too small, the SENS UP/AUTO mode will not function.

(6) Synchronization (SYNC)

You can select the internal sync (INT) mode or the line-lock sync (LL) mode. Additionally, this model accepts the VD2 signal from a specified component. Whenever the VD2 signal is supplied to this camera, the camera automatically switches to the VD2 sync mode.

When you select the line-lock (LL) mode, you can adjust vertical phase .

See page 40 for the setting.

Important Notices:

The priority of sync modes is given as follows:

1. Multiplexed vertical drive (VD2) (highest)
2. Line-lock (LL)
3. Internal sync (INT) (lowest)

Note: The priority of the automatic sync modes is the same as shown above.

(7) White Balance (WHITE BAL)

You can select either of three modes shown below for white balance adjustment:

- **Auto-Tracing White Balance (ATW1)**

  In this mode, the colour temperature is monitored continuously and thereby white balance is set automatically. The colour temperature range for the proper white balance is approx. 2 600 - 6 000 K. Proper white balance may not be obtained under the following conditions:

  1. The colour temperature is out of the 2 600 - 6 000 K range.
  2. When the scene contains mostly high colour temperature (bluish) objects, such as a blue sky.
  3. When the scene is dim.

  In these cases, select the AWC mode.

- **Auto-Tracing White Balance (ATW2)**

  This mode enables the camera to trace the white balance when it is used in an area lit by sodium lamps.

- **Automatic White Balance Control (AWC)**

  In this mode, accurate white balance is obtained within a colour temperature range of approx. 2 300 - 10 000 K.

  See page 42 for the setting.

(8) Motion Detector (MOTION DET)

The motion detector detects motion in a scene by monitoring changes in the brightness level. You can select the sensitivity level for the motion on the setup menu.

When the camera detects motion, it sends the alarm signal to the external equipment and stops at its position for the preset dwell time.

See page 43 for the setting.

(9) Auto Focus (AF MODE)

The camera adjusts the focus automatically by sensing the centre of the picture. S, M and L stand for the size of the sensing area: Small, Middle and Large.

See page 44 for details.

MANUAL S, M, L: Auto-focus is activated only when the AF key on the controller is pressed.

AUTO S, M, L: Auto-focus is activated automatically while a manual pan, tilt or zoom operation is performed.

Note: If SENS UP is set to ON except x2 FIX or x2 AUTO, the AUTO (S/M/L) mode is disabled and the MANUAL (S/M/L) mode is automatically selected.

(10) Special 2 Menu (SPECIAL2)

This menu allows you to adjust and set up the following items and functions: chroma level, aperture level, pedestal level, black and white function, digital noise reduction function and refresh function.

You can also reset your parameters to the factory default settings.

See page 45 for the setting.

● RS485 communication

Refer to the following pages for the communication parameter settings.

- Full/Half duplex (page 54)
- Transmission Speed (2 400 - 19 200 bps) (page 48)
- Parity bit, Stop bit, Flow control (page 48)
- Wait time, Delay time, Alarm output (page 48)
- Camera units (96 units max.) (page 52)
- Termination ON/OFF (page 54)
- Reset parameters (page 51)

SETTING PROCEDURES

The following setting procedures are described on the assumption that this model is used in combination with the WJ-SX550B Matrix Switcher and WV-CU550B System Controller. In case a controller other than the WV-CU550B is used, refer to the table on page 10.

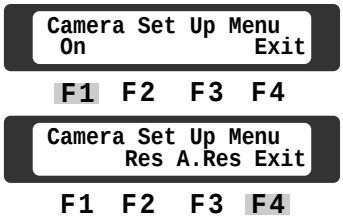
■ Menu Display

● Setup Menu Display

WV-CU550B

1. Select the camera number you want to set up and a monitor to display SET UP MENU.
2. Display the D4 menu on the LCD by pressing the appropriate cursor buttons.
3. Press the F1 button.
   SET UP MENU appears on the monitor screen.
4. To close SET UP MENU, press the F4 button.

D4 menu



WV-CU360

Press the CAM SETUP key for 2 seconds or more to open the SETUP menu.

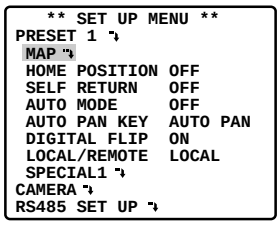
WV-CU161

Press the CAMERA SETUP key for 2 seconds or more to open the SETUP menu.

WV-RM70

1. Turn the MODE SELECTION switch to NORMAL or ALARM OFF.
2. Press the PROG switch for 2 seconds or more to open the Program Menu.
3. Move the cursor to Camera Set Up Menu, and press the SET switch to open the SETUP MENU.

Setup menu

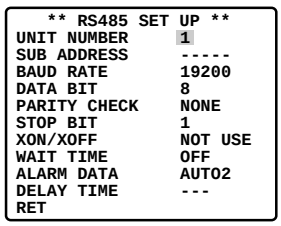


● Submenu Display

The items marked "↴" can be selected/changed on the submenu.

- Move the cursor to an item with the "↴" mark and press the CAM (SET) key. The submenu appears.

Submenu
(for RS485 setup)



■ Presetting

● Preset Menu Display

1. Displaying the preset menu directly

(1) Move the cursor to PRESET 1 ↴ and select the position number by moving the joystick to the right or left.

(2) Press the CAM (SET) key.
The preset setting menu appears on the monitor screen.

2. Displaying the preset menu from the PRESET NUMBER SET menu

(1) Move the cursor to MAP ↴ and press the CAM (SET) key.
The PRESET NUMBER SET menu appears on the monitor screen.

(2) Move the cursor to the position number to be set and press the CAM (SET) key.
The preset setting menu appears on the monitor screen. To display position number 33-64, move the cursor to “33-64” in the lower left of the screen and press the CAM (SET) key.

Notes:

- The * mark indicates that the position number has been preset.
- The character H refers to the home position.
- The second line from the bottom shows the preset ID corresponding to the selected number. “DOOR” next to “ID” in the example shown right is for preset position number 1.
- Preset numbers 1 to 4 are linked to alarm inputs 1 to 4. If alarm input 1 comes in, the camera turns to preset position 1, or to other positions according to alarm input 2, 3 or 4.

Setup menu

```
   ** SET UP MENU **
PRESET 1 ↴
 MAP ↴
 HOME POSITION OFF
 SELF RETURN   OFF
 AUTO MODE     OFF
 AUTO PAN KEY  AUTO PAN
 DIGITAL FLIP  ON
 LOCAL/REMOTE  LOCAL
 SPECIAL1 ↴
CAMERA ↴
RS485 SET UP ↴
```

Setup menu

```
   ** SET UP MENU **
PRESET 1 ↴
 MAP ↴
 HOME POSITION OFF
 SELF RETURN   OFF
 AUTO MODE     OFF
 AUTO PAN KEY  AUTO PAN
 DIGITAL FLIP  ON
 LOCAL/REMOTE  LOCAL
 SPECIAL1 ↴
CAMERA ↴
RS485 SET UP ↴
```

PRESET NUMBER SET menu (1-32)

```
 ** PRESET NUMBER SET **

  1    2    3    4
  5    6    7    8
  9   10   11   12
 13   14   15   16
 17   18   19   20
 21   22   23   24
 25   26   27   28
 29   30   31   32
   ID:DOOR
33-64  RET
```

PRESET NUMBER SET menu (33-64)

```
 ** PRESET NUMBER SET **

 33   34   35   36
 37   38   39   40
 41   42   43   44
 45   46   47   48
 49   50   51   52
 53   54   55   56
 57   58   59   60
 61   62   63   64
   ID:
1-32  RET
```

● Position Setting (POSITION SET)

1. Move the cursor to POSITION SET on the preset setting menu and press the CAM (SET) key.
The position setting menu appears.

2. To Set Panning/Tilting Positions

(1) For PAN/TILT, move the cursor to PUSH SET and press the CAM (SET) key. The PAN/TILT setting menu appears.

(2) Select panning/tilting positions by using the joystick, and press the CAM (SET) key.
The positions are set and the screen returns to the position setting menu.

Preset setting menu

```
     PRESET NO. 1*

POSITION SET  ↴
PRESET ID      ON   ↴
ALC/MANUAL     ALC  ↴
DWELL TIME     10S
SCENE FILE     OFF
PRESET SPEED   ••••••••|
               L       H


RET   DEL
```

PAN/TILT setting menu

```
    ** POSITION 1 **
PAN/TILT      →PUSH SET
ZOOM/FOCUS    →PUSH SET


   U TILT D/L PAN R
PAN OFFSET SET ←  -0.0 →


RET
FLOOR1
DOOR
```

Position setting menu

```
    ** POSITION 1 **
PAN/TILT      →PUSH SET
ZOOM/FOCUS    →PUSH SET



PAN OFFSET SET ←  -0.0 →


RET
FLOOR1
DOOR
```

3. Pan Offset

If the camera is replaced with a new one, the pan offset function is used to adjust its positions to be the same as before except patrol setting.

The system controller can download or upload the preset position data.

Caution: The preset data for other cameras (WV-CS850A for example) is incompatible with WV-CW860's. WV-CW860's preset data will be destroyed if you upload the conventional data. If this happened, reset the WV-CW860/WV-CW864E to the default settings. Download the factory settings into the controller and upload the correct preset data newly to the initialized WV-CW860/WV-CW864E.

(1) Display the PRESET NUMBER SET menu.

(2) Select a position number for the picture to be most enlarged among the numbers by using the joystick. Then press the CAM (SET) key. The position setting menu appears.

(3) Move the cursor to PAN OFFSET SET and select the right or left arrow by using the joystick.

(4) Press the CAM (SET) key until the desired offset value appears.

(5) Move the cursor to an item other than PAN OFFSET SET, and press the MON (ESC) key.

Notes:

- Further adjustment of the other positions is unnecessary. This adjustment applies to all other positions.
- Make sure to move the cursor before pressing the key in step 5. Otherwise the settings will be ignored.
- Retry the loading when the camera fails to upload or download the data.

4. To Set the Lens Zoom and Focus Positions

(1) Move the cursor to PUSH SET for ZOOM/FOCUS and press the CAM (SET) key. The ZOOM/FOCUS setting menu appears.

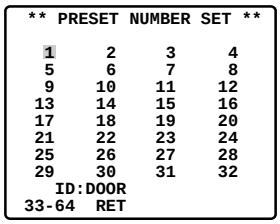
(2) Select a zoom position by moving the zoom control up and down, and a focus position by moving the focus control up and down, and then press the CAM (SET) key.
The positions are set and the screen returns to the position setting menu.

Notes:

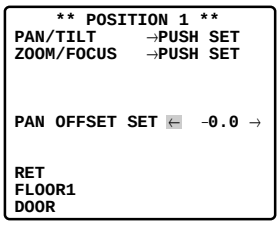
- When the camera is used at a nearly horizontal angle, the focus may not be adjustable to a high level of accuracy.
- If you move the cursor to the position number and move the joystick right or left, the position number can be selected.
  The selected preset position number can also be set after pressing the CAM (SET) key.
- The preset and camera IDs appear in the lower-left corner of the position setting menu after setting them.

5. Move the cursor to RET and press the CAM (SET) key to return to the preset setting menu.

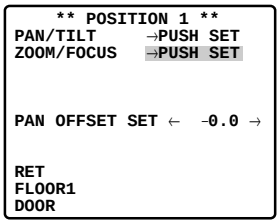
PRESET NUMBER SET menu (1-32)



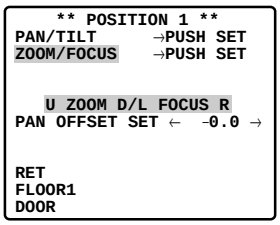
Position setting menu



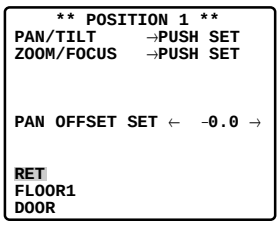
Position setting menu



ZOOM/FOCUS setting menu

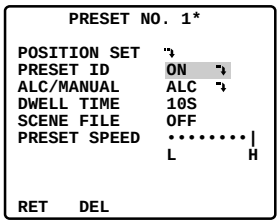


Position setting menu



● Preset Identification Setting (PRESET ID)

Preset setting menu



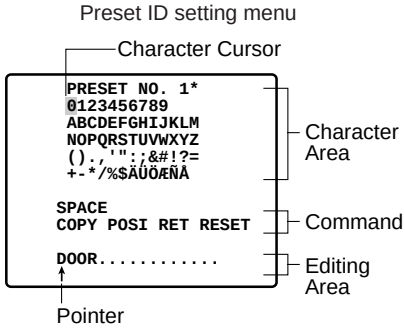
1. Move the cursor to PRESET ID on the preset setting menu and select ON or OFF by moving the joystick to the right or left.
The factory default setting is OFF.
ON: Preset ID appears on the monitor screen.
OFF: Preset ID does not appear.

2. Press the CAM (SET) key to display the preset ID setting menu.

To Enter a New Preset ID

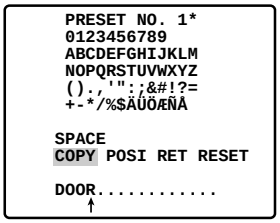
(1) Move the cursor to the desired character using the joystick, and press the CAM (SET) key.
(2) The selected character appears in the editing area. (The pointer in the editing area moves to the right automatically at this moment.) To enter a blank, select SPACE.
(3) Repeat the above procedure until all characters are entered.

Preset ID setting menu



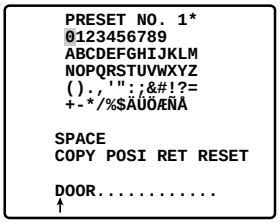
To Copy a Preset ID from Another Position

(1) Move the cursor to COPY and press the CAM (SET) key. The preset ID in the preceding position is immediately shown. Each consecutive pressing of the CAM (SET) key displays the ID preceding the one currently displayed.
(2) Display the most prospective ID.
(3) Follow the step “To Change an Entered Preset ID” if necessary.



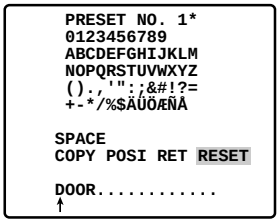
To Change an Entered Preset ID

(1) Move the pointer to the character to be edited in the editing area by using the joystick.
(2) Select a new character by using the joystick.
(3) Press the CAM (SET) key to determine the Preset ID.



To Delete an Entered Preset ID

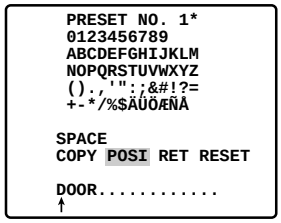
Move the cursor to RESET and press the CAM (SET) key.



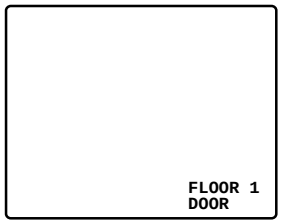
To Set a Display Position for a Preset ID

(1) Move the cursor to POSI and press the CAM (SET) key. The display position set menu appears.

(2) Move the ID to the desired position by using the joystick, and press the MON (ESC) key. The display position is set and the monitor screen returns to the preset ID setting menu.



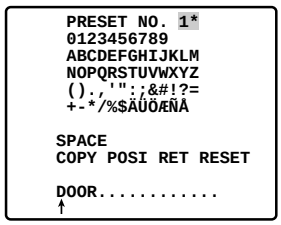
Display position set menu



To Enter the Next ID without Returning to the Preset Setting Menu

(1) In the preset ID setting menu, move the cursor to the top line and select a desired position number by moving the joystick to the right or left.

(2) Enter, copy, change or delete the ID as described above.



To Return to the Preset Setting Menu

Move the cursor to RET and press the CAM (SET) key.

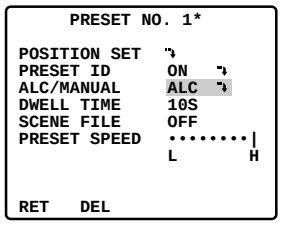
● Light Control Setting (ALC/MANUAL)

1. Move the cursor to ALC/MANUAL and select ALC or MANUAL by moving the joystick to the right or left.
   The factory default setting is ALC.
   ALC: The lens iris is automatically adjusted to suit the brightness of the object.
   MANUAL: The lens iris is fixed at the set value regardless of the brightness of the object.

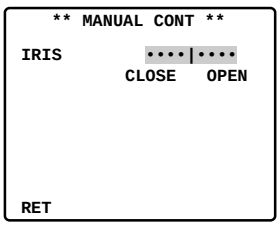
2. In case of ALC
   Press the CAM (SET) key. The backlight compensation menu appears on the monitor screen. See page 37 for the setting.

3. In case of MANUAL
   Press the CAM (SET) key. The setting menu appears on the monitor screen. Set the lens iris level as desired by moving the joystick to the right or left.

Preset setting menu



Manual setting menu



● Dwell Time (DWELL TIME)

- Move the cursor to DWELL TIME and set a dwell time by moving the joystick to the right or left. The factory default setting is 10S. Dwell time changes as follows:

2S ↔ 3S ↔ 5S ↔ 10S ↔ 30S ↔ 1MIN ↔ 2MIN ↔ 3MIN ↔ 4MIN

S stands for second(s), and MIN stands for minute(s).

Preset setting menu

```
     PRESET NO. 1*

POSITION SET
PRESET ID       ON
ALC/MANUAL      ALC
DWELL TIME      10S
SCENE FILE      OFF
PRESET SPEED    ••••••••|
                L       H


RET   DEL
```

● Scene File Setting (SCENE FILE)

1. To set a scene file number
   Move the cursor to SCENE FILE and select a scene file number (1 to 10, or OFF) by moving the joystick to the right or left. The factory default setting is OFF. No scene file is selected at OFF.

Preset setting menu

```
     PRESET NO. 1*

POSITION SET
PRESET ID       ON
ALC/MANUAL      ALC
DWELL TIME      10S
SCENE FILE      1
PRESET SPEED    ••••••••|
                L       H


RET   DEL
```

2. To set scene file details
   Move the cursor to a scene file number and press the CAM (SET) key. The setting menu appears.
   See the pages below for the setting.
   - Shutter speed: page 39
   - AGC: page 39
   - Electronic sensitivity enhancement: page 39
   - White balance: page 41
   - Motion detector: page 43
   - Auto focus: page 44

Scene file setting menu

```
   ** SCENE FILE 1 **

SHUTTER         OFF
AGC             ON(MID)
SENS UP         X2 AUTO
WHITE BAL       ATW1
MOTION DET      OFF
AF MODE         MANUAL S


RET
```

● Preset Speed Setting (PRESET SPEED)

- Move the cursor to PRESET SPEED and select a speed by moving the joystick to the right or left.

Preset setting menu

```
     PRESET NO. 1*

POSITION SET
PRESET ID       ON
ALC/MANUAL      ALC
DWELL TIME      10S
SCENE FILE      OFF
PRESET SPEED    ••••••••|
                L       H


RET   DEL
```

● To Return to the Preset Number Set Menu

- Move the cursor to RET and press the CAM (SET) key. The PRESET NUMBER SET menu appears with the * mark on the right of the preset position number.

Preset setting menu

```
     PRESET NO. 1*

POSITION SET
PRESET ID       ON
ALC/MANUAL      ALC
DWELL TIME      10S
SCENE FILE      OFF
PRESET SPEED    ••••••••|
                L       H


RET   DEL
```

● To Return to the Setup Menu

- Move the cursor to RET and press the CAM (SET) key.

PRESET NUMBER SET menu

```
 ** PRESET NUMBER SET **

  1*    2     3     4
  5     6     7     8
  9    10    11    12
 13    14    15    16
 17    18    19    20
 21    22    23    24
 25    26    27    28
 29    30    31    32
   ID:DOOR
33-64  RET
```

■ Deleting Preset Positions

1. Move the cursor to PRESET 1 and select the position number to be deleted by using the joystick.

Setup menu

```
   ** SET UP MENU **
PRESET 1*
 MAP
 HOME POSITION OFF
 SELF RETURN   OFF
 AUTO MODE     OFF
 AUTO PAN KEY  AUTO PAN
 DIGITAL FLIP  ON
 LOCAL/REMOTE  LOCAL
 SPECIAL1
CAMERA
RS485 SET UP
```

2. Press the CAM (SET) key to display the preset setting menu.

Preset setting menu

```
      PRESET NO. 1*

POSITION SET
PRESET ID      ON
ALC/MANUAL     ALC
DWELL TIME     10S
SCENE FILE     OFF
PRESET SPEED   ••••••••|
               L       H


RET   DEL
```

3. Move the cursor to DEL and press the CAM (SET) key.
   This deletes the preset position and the PRESET NUMBER SET menu appears. The * mark on the right of the number disappears.
   Note: Your selected preset number is cancelled only in the SEQ and SORT mode. The previously set parameters (for PAN, TILT positions, etc.) are not changed. If you want to change these parameters, you must set them again.

PRESET NUMBER SET menu

```
 ** PRESET NUMBER SET **

  1     2     3     4
  5     6     7     8
  9    10    11    12
 13    14    15    16
 17    18    19    20
 21    22    23    24
 25    26    27    28
 29    30    31    32
   ID:DOOR
33-64  RET
```

■ Home Position Setting (HOME POSITION)

1. To set a position number for the home position
   Move the cursor to HOME POSITION and select a desired position number by moving the joystick to the right or left.
   The factory default setting is OFF.
2. Select OFF if you are not using the home position function.
   Note: This setting functions only when AUTO MODE is set to OFF.

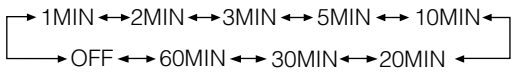
Setup menu

```
   ** SET UP MENU **
PRESET 1
 MAP
 HOME POSITION 15
 SELF RETURN   OFF
 AUTO MODE     OFF
 AUTO PAN KEY  AUTO PAN
 DIGITAL FLIP  ON
 LOCAL/REMOTE  LOCAL
 SPECIAL1
CAMERA
RS485 SET UP
```

■ Self Return Setting (SELF RETURN)

To set a time-out parameter for return to the home position

- Move the cursor to SELF RETURN and select a return time by moving the joystick to the right or left.
  The factory default setting is OFF.
  Return time changes as follows:



  MIN stands for minute(s).

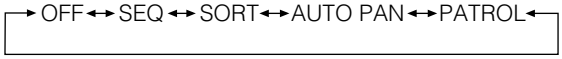
  Note: The camera will return to the auto mode if that is set to SEQ, SORT, AUTO PAN or PATROL when a specific time has elapsed after a manual operation.

Setup menu

```
   ** SET UP MENU **
PRESET 1
 MAP
 HOME POSITION OFF
 SELF RETURN   10MIN
 AUTO MODE     OFF
 AUTO PAN KEY  AUTO PAN
 DIGITAL FLIP  ON
 LOCAL/REMOTE  LOCAL
 SPECIAL1
CAMERA
RS485 SET UP
```

■ Auto Mode Selection (AUTO MODE)

1. To set auto mode
   Move the cursor to AUTO MODE and select a mode by moving the joystick to the right or left.
   The factory default setting is OFF.
   Modes change as follows:



   OFF: No automatic operation. The camera can be operated only manually.
   SEQ: The camera operates in the sequence of preset positions in numerical order.
   SORT: The camera operates in the sequence of preset positions counterclockwise from the Pan/Tilt starting point.
   AUTO PAN: The camera automatically turns within the preset panning range.
   PATROL: The camera operates in the patrol-learn function.

2. When the AUTO PAN mode is selected, set details as follows:
   Move the cursor to AUTO PAN "↴" and press the CAM (SET) key to display the AUTO PAN setting menu.

3. To set a panning starting point and panning endpoint
   Follow the steps below.
   (1) Move the cursor to POSITION and press the CAM (SET) key. The cursor moves to START.
   (2) Move the joystick to the right or left to select a panning starting point and press the CAM (SET) key.
   This determines the starting point and the cursor moves to END.
   (3) Move the joystick to the right or left to select a panning endpoint and press the CAM (SET) key.
   This determines the endpoint and the cursor moves to POSITION.

4. To set a panning speed
   Move the cursor to SPEED, and set a panning speed by moving the joystick to the right or left .
   The panning speed increases when the joystick is moved to the right, and decreases when it is moved to the left.

Caution: If the panning range is changed after the camera has not panned for a long time or has been panning in the same panning range, the picture may not be clear or noise may appear. In this case, pan the camera fully several times.
If this does not eliminate the problem, refer servicing to qualified service personnel.

Setup menu

```
   ** SET UP MENU **
PRESET 1 ↴
 MAP ↴
 HOME POSITION OFF
 SELF RETURN   OFF
 AUTO MODE     AUTO PAN ↴
 AUTO PAN KEY  AUTO PAN
 DIGITAL FLIP  ON
 LOCAL/REMOTE  LOCAL
 SPECIAL1 ↴
CAMERA ↴
RS485 SET UP ↴
```

AUTO PAN setting menu

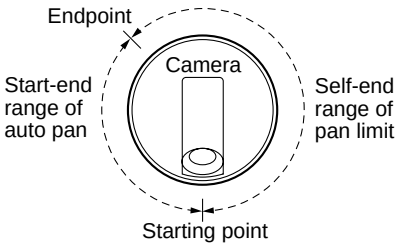
```
     ** AUTO PAN **

POSITION       START
               END
SPEED          ····|····
               L       H
PAN LIMIT      OFF
ENDLESS        OFF
DWELL TIME     1S


RET
```

```
     ** AUTO PAN **

POSITION       START
               END
SPEED          ····|····
               L       H
PAN LIMIT      OFF
ENDLESS        OFF
DWELL TIME     1S


RET
```

```
     ** AUTO PAN **

POSITION       START
               END
SPEED          ····|····
               L       H
PAN LIMIT      OFF
ENDLESS        OFF
DWELL TIME     1S


RET
```

```
     ** AUTO PAN **

POSITION       START
               END
SPEED          ····|····
               L       H
PAN LIMIT      OFF
ENDLESS        OFF
DWELL TIME     1S


RET
```

5. To set pan limit ON/OFF
   Move the cursor to PAN LIMIT and select ON or OFF by moving the joystick to the right or left.
   The factory default setting is OFF.
   ON: Manual pan is limited from the starting point to the endpoint specified by position setting. Set ENDLESS to OFF before PAN LIMIT is set to ON.
   OFF: Manual pan is not limited.

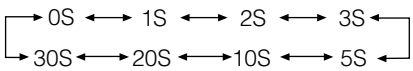


   Note: When ON is selected for PAN LIMIT, manual pan moves the camera away from the other side (PAN LIMIT) of the start-end range.

6. To set ENDLESS to ON/OFF
   Move the cursor to ENDLESS, and select ON or OFF by moving the joystick to the right or left.
   The factory default setting is OFF.
   ON: The camera pans from the starting point to the endpoint, and keeps rotating in the same direction to return to the starting point. Set PAN LIMIT to OFF before ENDLESS is set to ON.
   OFF: The camera pans from the starting point to the endpoint, and rotates backward to the starting point.
   This movement is repeated over and over.

```
     ** AUTO PAN **

POSITION        START
                END
SPEED           ••••|••••
                L       H
PAN LIMIT       OFF
ENDLESS         ON
DWELL TIME      1S


RET
```

7. To set a dwell time
   Move the cursor to DWELL TIME and select a dwell time by moving the joystick to the right or left.
   The factory default setting is 1S.
   Dwell time changes as follows:




```
     ** AUTO PAN **

POSITION        START
                END
SPEED           ••••|••••
                L       H
PAN LIMIT       OFF
ENDLESS         OFF
DWELL TIME      1S


RET
```

Notes:

- When the panning, tilting, zooming or focusing in the SEQ, SORT or PATROL mode is controlled manually, the Auto mode function should be cancelled.
  To activate the auto mode, select the desired auto mode again or set a time for SELF RETURN in the SET UP menu.
- When 0S is selected, the camera stops without dwelling and starts.
- Auto refreshing may be activated during the patrol play or the auto mode to calibrate the lens position.

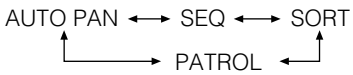
■ Auto Pan Key Setting (AUTO PAN KEY)

Setup menu

```
   ** SET UP MENU **
PRESET 1
 MAP
 HOME POSITION OFF
 SELF RETURN   OFF
 AUTO MODE     OFF
 AUTO PAN KEY  AUTO PAN
 DIGITAL FLIP  ON
 LOCAL/REMOTE  LOCAL
 SPECIAL1
CAMERA
RS485 SET UP
```

This is used for assigning one of the following auto functions to the AUTO key on the controller. Pressing the AUTO key activates the assigned function after this setting.

- Move the cursor to AUTO PAN KEY and select an auto function by moving the joystick to the right or left.
  The factory default setting is AUTO PAN.
  Mode changes as follows:



AUTO PAN: Assigns the auto panning function to the key.
SEQ: Assigns the sequence function to the key.
SORT: Assigns the sort function to the key.
PATROL: Assigns the patrol play function to the key.
Note: Auto pan LED on the controller does not light if a function other than the auto pan function is assigned. The auto pan function cannot be stopped with the AUTO PAN key.

■ Digital Flip Setting (DIGITAL FLIP)

Setup menu

```
   ** SET UP MENU **
PRESET 1
 MAP
 HOME POSITION OFF
 SELF RETURN   OFF
 AUTO MODE     OFF
 AUTO PAN KEY  AUTO PAN
 DIGITAL FLIP  ON
 LOCAL/REMOTE  LOCAL
 SPECIAL1
CAMERA
RS485 SET UP
```

- Move the cursor to DIGITAL FLIP and select ON or OFF by moving the joystick to the right or left.
  The factory default setting is ON.
  OFF: Tilt range is limited from 0° to 90°.
  ON: The digital flip function allows the tilt angle to widen up to 180°. The image on the monitor screen is flipped horizontally and vertically at the tilt angle of approx. 135° (If the camera is installed on a ceiling).
  Note: Tilt range narrows from 180° to 90° if PAN LIMIT is set to ON.

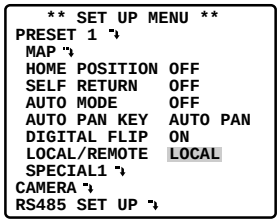
Notes:

- Digital flip functions while moving the joystick downwards. In case of moving the joystick to other directions, it does not function.
- When OFF is selected for DIGITAL FLIP, the following operations are required to move the camera 180° vertically.
  1) Move the joystick downwards to aim the camera down.
  2) Move the joystick to the right or left to rotate the camera 180° horizontally.
  3) Move the joystick upwards.
- To set preset position directly from the WV-CU360, WV-CU550B or WV-CU161 System Controller, it is temporarily required setting both the electronic zoom function and digital flip function to OFF. Tilt range setting is disabled between 90° and 180°.

■ Local/Remote Setting (LOCAL/REMOTE)

- Move the cursor to LOCAL/REMOTE, and select LOCAL or REMOTE by moving the joystick to the right or left.
  The factory default setting is LOCAL.
  Note: The REMOTE mode does not work when the WV-RM70, WV-CU360, WV-CU161, WJ-FS616 or WV-CU550 series is connected. Make sure that LOCAL mode is selected in this case.

Setup menu



■ Special 1 Menu Setting (SPECIAL 1)

● Privacy Zone (PRIVACY ZONE)

Up to 8 unwanted zones can be masked on the monitor screen.

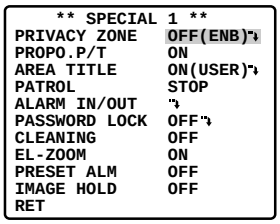
1. Move the cursor to PRIVACY ZONE and select ON (ENB) or OFF (ENB) by moving the joystick to the right or left. Press the CAM (SET) key to display the ZONE NUMBER setting menu.
   The factory default setting is OFF (ENB).

   ON (ENB): Preset privacy zones are veiled on the monitor screen.
   OFF (ENB): The veiling function does not work.

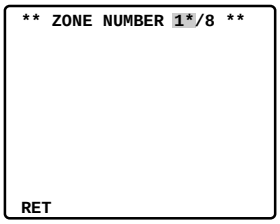
   Note: If ON(DIS) or OFF(DIS) appears for PRIVACY ZONE, the steps from 2 onward are not applicable. Select OFF for PASSWORD LOCK to take the following steps.

2. Select a zone number by moving the joystick to the right or left, and press the CAM (SET) key.
   - A zone number followed by * (asterisk) indicates that the zone has already been registered.
   - When a zone number having no * is selected, the picture is zoomed out fully.
   - When a registered zone number is selected, the camera moves to the preset position. Note that if you move PAN/TILT, ZOOM/FOCUS or ZONE SCALE in that position, the registered zone number having "*" is cancelled.
   - The zone frame appears in the centre of the screen if 3 or fewer mask areas exist in that picture and if the zone number is not registered yet.
   - The privacy zone may appear on the monitor screen depending on the direction of the camera.
   - The privacy zone function will not work at start-up immediately after turning the power on.

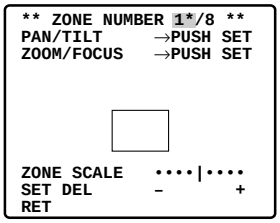
Special 1 menu



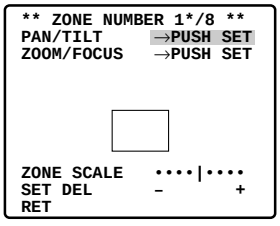
ZONE NUMBER setting menu



ZONE setting menu



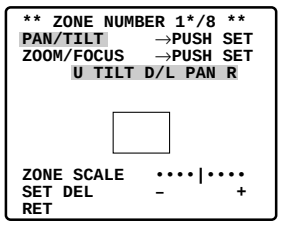
ZONE setting menu



3. To register a new zone

3-1 For PAN/TILT, move the cursor to PUSH SET and press the CAM (SET) key.

PAN/TILT setting menu

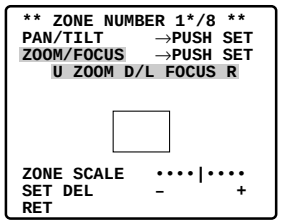


3-2 Adjust the pan and tilt position so that the desired position comes into the zone frame by using the joystick.

Note: Zone setting is not available while the zone frame is not shown, for example, when the camera is tilted downward by more than 45 °.

3-3 For ZOOM/FOCUS, move the cursor to PUSH SET , and press the CAM (SET) key.

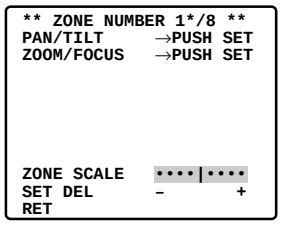
ZOOM/FOCUS setting menu



3-4 Adjust zoom and focus, and press the CAM (SET) key.
Zoom can be adjusted within the range of 1 to 10 magnifications.

3-5 Move the cursor to ZONE SCALE, and move the joystick to the right or left to adjust the zone frame. Press the CAM (SET) key after the adjustment.
Moving the joystick in the L direction decreases the zone frame, and moving it in the H direction increases it. However, the aspect ratio is fixed at 3 to 4.
The privacy zone setting has been completed.
The menu returns to the ZONE NUMBER setting menu. If DEL is selected, zone setting is released and the ZONE NUMBER setting menu appears.

ZONE SCALE setting menu



Notes:

- To complete new settings and repeat other settings, move the cursor to SET and press the CAM (SET) key. The ZONE NUMBER setting menu returns.
- To cancel new settings and return to the SPECIAL 1 menu, move the cursor to DEL and press the CAM (SET) key. New settings are not registered.
- To complete new settings and return to the SPECIAL 1 menu, move the cursor to RET and press the CAM (SET) key.

● Proportional Pan/Tilt (PROPO. P/T)

- Move the cursor to PROPO. P/T and select either ON or OFF by moving the joystick to the right or left.
  Factory default setting: ON

  ON: Pan/tilt speed is in inverse proportion to the zoom ratio as follows:

Zoom ratio	Speed level
x1	7 (fastest)
x2	5
x4	3
x8	1
x15 or more	0 (slowest)

  * The speed level values are approximate.

  OFF: The speed is constant at the fastest level regardless of the zoom ratio.

Special 1 menu

```
    ** SPECIAL 1 **
PRIVACY ZONE   OFF(ENB)
PROPO.P/T      ON
AREA TITLE     ON(USER)
PATROL         STOP
ALARM IN/OUT
PASSWORD LOCK  OFF
CLEANING       OFF
EL-ZOOM        ON
PRESET ALM     OFF
IMAGE HOLD     OFF
RET
```

● Area Title (AREA TITLE)

Up to 8 area titles can be added in specific positions.

1. Select ON (NESW), ON (USER) or OFF by moving the joystick to the right or left.
   ON (NESW): An area title is displayed for indicating the camera direction: North (N), North-East (NE), East (E), South-East (SE), South (S), South-West (SW), West (W) and North-West (NW).
   ON (USER): A user customized area title appears in a maximum of 16 characters.
   OFF: Area tittle does not appear.
   Factory default setting: ON (USER)

2. Press the CAM (SET) key. A submenu appears except when OFF is selected.

When ON (NESW) is selected:

1. Move the cursor to PUSH SET for PAN/TILT, and press the CAM (SET) key. PAN/TILT is highlighted and “U TILT D/L PAN R” appears.

2. Turn the camera north by using the joystick, and press the CAM (SET) key. The origin of the direction (North) is set.

   Note: Area titles are highlighted until the origin is set.

Special 1 menu

```
    ** SPECIAL 1 **
PRIVACY ZONE   OFF(ENB)
PROPO.P/T      ON
AREA TITLE     ON(NESW)
PATROL         STOP
ALARM IN/OUT
PASSWORD LOCK  OFF
CLEANING       OFF
EL-ZOOM        ON
PRESET ALM     OFF
IMAGE HOLD     OFF
RET
```

AREA TITLE (NESW) setting menu

```
 ** DIRECTION(NESW) **
PAN/TILT       →PUSH SET
ZOOM/FOCUS     →PUSH SET
POSI

            +
            N



RET
```

PAN/TILT setting menu

```
 ** DIRECTION(NESW) **
PAN/TILT       →PUSH SET
ZOOM/FOCUS     →PUSH SET
POSI
    U TILT D/L PAN R

            +
            N



RET
```

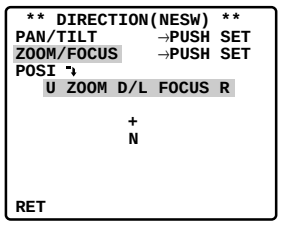
3. Move the cursor to PUSH SET for ZOOM/FOCUS, and press the CAM (SET) key. ZOOM/FOCUS is highlighted and “U ZOOM D/L FOCUS R” appears.

4. Adjust the zoom or focus by using the joystick.

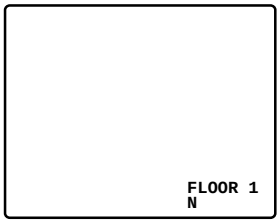
5. Move the cursor to POSI ↴, and press the CAM (SET) key. The area title position appears on the monitor screen. If needed, change the display position by using the joystick, and press the MON (ESC) key.
   An area title always appears under the camera ID.
   If the camera ID and an area title are set to be shown in separate positions, the area title appears above the camera ID.

6. Move the cursor to RET, and press the CAM (SET) key. The SPECIAL 1 menu appears again.

ZOOM/FOCUS setting menu



Display Position setting menu



Setting [ON (USER)]

If ON (USER) is selected on the SPECIAL 1 menu, the Area Title selection menu appears. The screen has a number column and title column above RET and RESET.

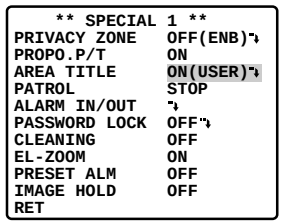
Note: An area number followed by an asterisk * has already been preset.

1. To select a camera direction, move the cursor to the desired number, and press the CAM (SET) key. The direction menu of the selected number appears.
2. Adjust PAN/TILT, ZOOM/FOCUS and display the position in the as same way as AREA TITLE, DIRECTION (NESW). See page 28.
3. To add a user-customized title, move the cursor to the title of the desired number, and press the CAM (SET) key. The AREA TITLE menu of the selected number appears.

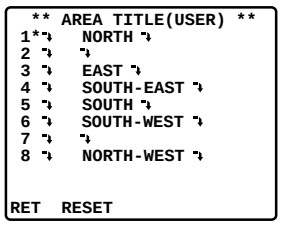
Area Title Editing

1. Move the cursor to the desired character in the character field using the joystick, and press the CAM (SET) key.
2. The selected character appears in the editing field and the blinking cursor moves one position to the right.
3. Repeat steps 1 and 2 until one area title is completed.
4. Move the cursor to POSI ↴, and press the CAM (SET) key. The area title appears on the monitor screen. If needed, change the display position by using the joystick, and press the MON (ESC) key.

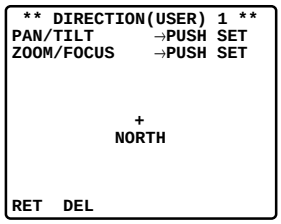
Special 1 menu



AREA TITLE (USER) selection menu



DIRECTION (USER) setting menu



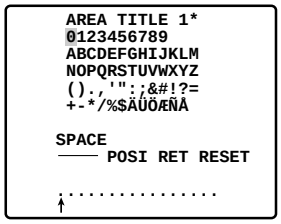
To Quit Editing

- To return to the AREA TITLE menu, move the cursor to RET, and press the CAM (SET) key.
- To cancel one area title, move the cursor to RESET in the AREA TITLE menu, and press the CAM (SET) key.
- To return to the SPECIAL 1 menu, move the cursor to RET, and press the CAM (SET) key.
- To erase all the area titles, move the cursor to RESET in the AREA TITLE (USER) selection menu, and press the CAM (SET) key.

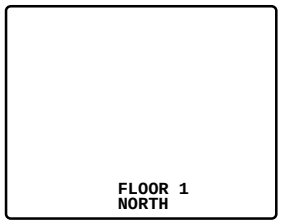
Notes:

- An area title appears under the camera ID if both are set in the same position. If the setting is different, they appear in the area title position.
- In case of sharing a common subject in a scene of other camera number, the nearest area title appears while the camera direction deviates within 45° from the set position. If two or more area numbers are set in the same position, the title of the highest number appears.

AREA TITLE menu



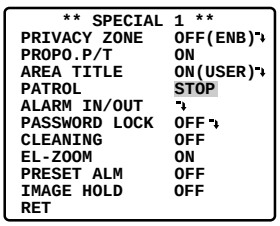
Display Position setting menu



● Patrol-learn and Patrol Play (PATROL)

A routine of manual operations can be stored for 30 seconds at the maximum and reproduced repetitively.

Special 1 menu

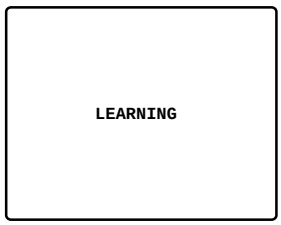


1. Set the following parameters for the patrol-learn starting position. These parameters are stored when the patrol-learn mode starts.
   - PAN/TILT/ZOOM/FOCUS
   - IRIS
   - SHUTTER
   - AGC
   - SENS UP
   - WHITE BALANCE
   - IMAGE HOLD
   - AREA TITLE
   - DIGITAL FLIP
   - PRIVACY ZONE
   - CAMERA ID
   - PROPO.PT
   - PAN LIMIT
   - BURST
   - CLEANING

   After starting the patrol-learn, the following manual operations are stored.
   - PAN/TILT/ZOOM/FOCUS operation
   - IRIS operation
   - Preset positioning
2. Open the SET UP menu and move the cursor to SPECIAL 1. For PATROL, select LEARN, PLAY or STOP by moving the joystick to the right or left.
   The factory default setting is STOP.
   LEARN: A series of manual operations is stored.
   PLAY: Stored operations are reproduced.
   STOP: LEARN or PLAY is not activated.

Patrol-learn with a Controller Having the PATROL Key

PATROL LEARN



1. Press the PATROL LEARN key and PROGRAM key simultaneously to start patrol-learn. The setup menu displays “LEARNING”, and the starting points are stored.
2. Operate patrol-learn manually. The operation data is stored.
3. To stop patrol-learn, press the PATROL STOP and PROGRAM key simultaneously.

Patrol-learn with a Controller not Having the PATROL Key

1. Select patrol-learn in the setup menu, and then close the menu. Starting points are stored and “LEARNING” appears on the monitor screen.
2. Operate patrol-learn manually.
3. Open the SET UP menu to stop learning.

Notes:

- It is recommended to set PAN LIMIT to ON for patrol-learn. Otherwise PAN LIMIT is invalid in playback.
- If the power fails during the patrol-learn mode, start the patrol-learn function again from the starting point.
- LEARN also stops 30 seconds after starting if the memory is full.
- Auto refreshing may be activated during the patrol play mode or the auto mode to calibrate the lens position.

Patrol Play with a Controller Having the PATROL Key

1. Press the PATROL PLAY key. The camera turns to the starting point and reproduces the operations stored in the memory. Iris operation is valid only in the playback mode.
2. Press the PATROL STOP key and PROGRAM key simultaneously to stop playback or press any manual operation key (e.g., PAN/TILT/ ZOOM/FOCUS) except the iris keys.

Patrol Play with a Controller not Having the PATROL Key

1. Select patrol play in the setup menu, and then close the menu. The camera turns to the starting point and the operations stored in memory are reproduced. Iris operation is valid only in the playback mode.
2. Open the SET UP menu, or press any manual operation key (e.g., PAN/TILT/ ZOOM/FOCUS) except the iris keys to stop playback.

Patrol Play with the AUTO PAN Key

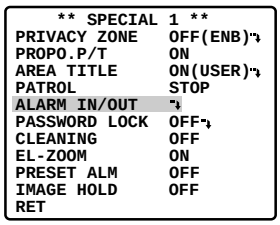
1. If the PATROL PLAY function is assigned to the AUTO PAN key, press the AUTO PAN key to turn the camera back to the starting point and to reproduce the operation data stored in the memory.
2. To stop playback, press the PATROL STOP key and PROGRAM key simultaneously or any manual operation key (e.g., PAN/TILT/ZOOM/FOCUS) except the iris keys.

Notes:

- During the patrol play mode, the camera movement may occasionally deviate from the entered routine when the routine includes a move to a preset position. If this happens, re-enter the routine of manual operations for patrol-learn.
- During the patrol play mode, black and white automatic switching does not work.
- During the patrol play mode, when the power of the controller is turned on or off, the patrol play stops. In this case, press the PATROL PLAY key again. (If SELF RETURN is set to ON, the patrol play will start again after elapsing the setting return time.)

● Alarm Input/Output (ALARM IN/OUT)

Special 1 menu



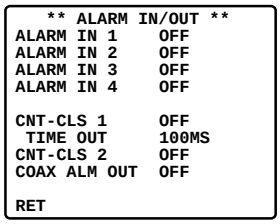
Move the cursor to ALARM IN/OUT, and press the CAM (SET) key. The ALARM IN/OUT submenu appears.

Note: While the camera is in the AF mode or the lens moves between WIDE and TELE, alarm input may be ignored if several alarm inputs are received in succession.

ALARM IN 1-4

Alarm input signals are supplied from external devices through the ALARM IN connector to turn the camera to a preset position.

ALARM I/O submenu



1. Move the cursor to ALARM IN 1* and select a preset position or OFF by moving the joystick, then press the CAM (SET) key.
   The factory default setting is OFF.

* Set ALARM IN 2, 3 and 4 in the same way as ALARM IN 1.

1 POSI, 2 POSI, 3 POSI and 4 POSI: Preset position. If an alarm input is received, the camera turns to a preset position, and sends an alarm output signal. The position number corresponds to the alarm input numbers (1-1, 2-2, 3-3 and 4-4).

B/W: Available for ALARM INPUT 4 only. The camera changes its mode from colour to black and white if ALARM IN 4 is supplied.

OFF: The camera ignores alarm inputs.

Note: If two or more alarm inputs are received while the camera is moving to a preset position, the camera starts to aim at preset positions in small preset numerical order after current positioning.

CNT-CLS 1, 2 (Output)

Two contact closure signals (Open collector type) are output through the Alarm Output connector.

1. Move the cursor to CNT-CLS 1, and select OFF, ALARM or AUX 1 by moving the joystick to the right or left.
   The factory default setting is OFF.
   When ALARM is selected, TIME OUT appears. Select an appropriate duration from among 100 MS, 200 MS, 1000 MS (1 s), 2000 MS (2 s) or 4000 MS (4 s) by moving the joystick to the right or left.
   The factory default setting is 100 MS.

   Note: The shorter the duration, the more frequent will be the detection output.

2. Move the cursor to CNT-CLS 2, then select OFF, B/W or AUX 2 by moving the joystick to the right or left.
   The factory default setting is OFF.
   OFF: Contact closure signals are deactivated.
   ALM: Available for CNT-CLS 1 only. A motion detection signal is output.
   AUX 1(2): An alarm signal is output when the camera receives a command from the controller.
   B/W: Available for CNT-CLS 2 only. ON (active) is output when the camera operates in the black and white mode if ALARM IN 4 is set to B/W.

   Note: It is recommended to set the connected external device to ignore the shorter alarm outputs of 90 ms or less from the camera.

COAXIAL ALARM OUT

Alarm output signals are supplied through the coaxial cable.

1. Move the cursor to COAX ALM OUT and select ON or OFF.
2. Press the CAM (SET) key.
   The factory default setting is OFF.
   ON: The camera sends an alarm output signal after it turns to a preset position.
   OFF: The camera does not send the output signal.

Notes:

- The camera ignores alarm inputs during manual operation.
- Select OFF when the camera downloads or uploads the preset data.

● Password Lock (PASSWORD LOCK)

Caution: For security do not operate your VTR for recording while the password menus are displayed on the monitor screen.

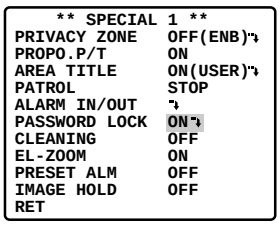
A 3-digit number is used for a password to limit access to the privacy zone settings.

1. Move the cursor to PASSWORD LOCK, then select ON or OFF by moving the joystick to the right or left.
   The factory default setting is OFF.
   Note: ON or OFF can be selected only after going through the password verification.

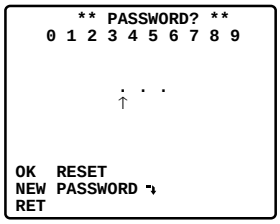
   OFF: Access to the privacy zone settings is free. ON(ENB) or OFF(ENB) for PRIVACY ZONE appears on the SPECIAL 1 menu.
   ON: Access is limited in the verification menu. ON(DIS) or OFF(DIS) for PRIVACY ZONE appears on the SPECIAL 1 menu.

2. Press the CAM (SET) key.

Special 1 menu



PASSWORD



Password Verification

3. The password verification menu appears.
   3-1 Select a numeral for the first digit by moving the joystick to the right or left, and press the CAM (SET) key. Though the entered password is not displayed, the up-arrow moves one character to the right.
   3-2 Repeat the above step for the 2nd and 3rd digits.
   Default: 123
   3-3 The cursor moves to OK after all the three digits have been entered. Unless you want to change the password, press the CAM (SET) key.
   If the password entered is entered, the screen returns to SPECIAL 1. ON and OFF settings are the same as made on the SPECIAL 1 menu is as set in step 1.
   If a wrong password is entered, the screen returns to the verification menu. Repeat steps 3-1 to 3-3 to verify the password.
   3-4 To cancel an incomplete password,. move the cursor to RESET, and press the CAM (SET) key. The screen returns to the verification menu.

3-5 To return to the SPECIAL 1 menu without verifying the password, move the cursor to RET, and press the CAM (SET) key.

New Password

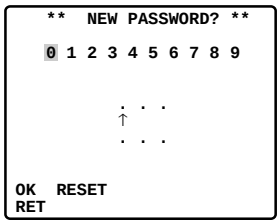
4. To change the password in step 3-3 above, move the cursor from OK to NEW PASSWORD, and press the CAM (SET) key. The NEW PASSWORD menu appears.

   Notes:

   - The NEW PASSWORD menu is accessible only after the verification has been completed.
   - The following operations for NEW PASSWORD will not affect the ON/OFF setting for PRIVACY ZONE on the SPECIAL 1 menu.

   The up-arrow mark appears indicating the first digit on the first line.

NEW PASSWORD



4-1 Enter a new three-digit password in the same way as in steps 3-1 to 3-2.
4-2 The cursor moves to OK after all three digits have been entered. Press the CAM (SET) key to move the cursor to the first digit on the second line.
4-3 Enter the same password as the one you have entered on the first line.
4-4 The cursor moves to OK. Press the CAM (SET) key. If the new password is successfully entered, the screen returns to SPECIAL 1.
4-5 Retry steps 4-1 to 4-4. If the first entry for the password is different from the second one, the screen returns to the NEW PASSWORD? menu.
4-6 To return to the SPECIAL 1 menu without changing the password, move the cursor to RET, and press the CAM (SET) key.

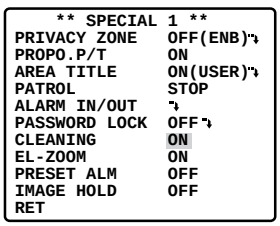
● Cleaning (CLEANING)

With CLEANING in the ON position, the camera's built-in electromechanical contacts are cleaned at regular intervals (approx. every 7 days).
A dry contract adversely affects picture quality and motors operation.

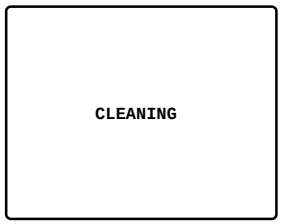
1. Move the cursor to CLEANING and select ON or OFF by moving the joystick to the right or left.
   The factory default setting is OFF.

   ON: The contacts are cleaned for approx. 1 minute. "CLEANING" disappears when over the cleaning process is completed.
   OFF: No contact cleaning.
   Note: Select OFF when the camera downloads or uploads the preset data.

Special 1 menu



CLEANING



● Electronic Zoom (EL-ZOOM)

The electronic zoom magnifies a scene 10-fold. With a 22-fold optical zoom lens, the camera is capable of 220-fold zoom.

Special 1 menu

```
    ** SPECIAL 1 **
PRIVACY ZONE    OFF(ENB)
PROPO.P/T       ON
AREA TITLE      ON(USER)
PATROL          STOP
ALARM IN/OUT
PASSWORD LOCK   OFF
CLEANING        OFF
EL-ZOOM         ON
PRESET ALM      OFF
IMAGE HOLD      OFF
RET
```

1. Move the cursor to EL-ZOOM and select ON or OFF by moving the joystick to the right or left, and then press the CAM (SET) key. The factory default setting is ON.

   ON: 10 - fold electronic zoom is available with the ZOOM switch on the controller.

   OFF: The electronic zoom function is not used.

   Notes:

   - A scene magnified by the electronic zoom function may be inferior in picture quality to a non-magnified one.
   - The electronic zoom does not function in the preset position setting mode.
   - To set preset positions directly from the WV-CU550B, WV-CU360 or WV-CU161 System Controller, you need to set the electronic zoom function temporarily to OFF.

● Preset Alarm (PRESET ALM)

An alarm output is sent when the camera moves to the designated position depending on the mode.

Special 1 menu

```
    ** SPECIAL 1 **
PRIVACY ZONE    OFF(ENB)
PROPO.P/T       ON
AREA TITLE      ON(USER)
PATROL          STOP
ALARM IN/OUT
PASSWORD LOCK   OFF
CLEANING        OFF
EL-ZOOM         ON
PRESET ALM      ON
IMAGE HOLD      OFF
RET
```

1. Move the cursor to PRESET ALARM and select ON or OFF. The factory default setting is OFF.

   ON: Alarm signals are output in the following cases.

   - When a preset positioning sequence is completed while AUTO MODE is set to SEQ.
   - When a preset positioning sequence is completed while AUTO MODE is set to SORT.
   - When positioning to the starting point is completed while AUTO MODE is set to AUTO PAN.
   - When the self-return function has returned the camera to its home position.
   - When preset positioning is completed by manual operation.
   - When positioning to the starting point is completed while PATROL is set to PLAY.

   OFF: Alarm signals are not output.

   Note: Select OFF when the camera downloads or uploads the preset data.

● Image Hold (IMAGE HOLD)

The camera picture remains as a still image on the monitor screen until the camera reaches the preset position. This function is useful for surveillance via local area network.

Special 1 menu

```
    ** SPECIAL 1 **
PRIVACY ZONE    OFF(ENB)
PROPO.P/T       ON
AREA TITLE      ON(USER)
PATROL          STOP
ALARM IN/OUT
PASSWORD LOCK   OFF
CLEANING        OFF
EL-ZOOM         ON
PRESET ALM      OFF
IMAGE HOLD      ON
RET
```

1. Move the cursor to IMAGE HOLD and select ON or OFF. The factory default setting is OFF.

ON: The last displayed still image is shown till the camera finishes moving to a preset position. However, the still image may be distorted with the effect of panning or tilting.

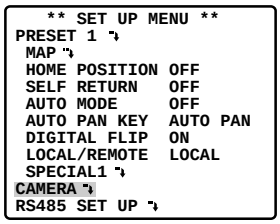
OFF: The current image is being displayed while the camera is moving to a preset position.

■ Camera Setting

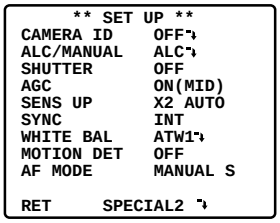
To Display the Camera Setting Menu

- Move the cursor to CAMERA "↴, and press the CAM (SET) key. The camera setting menu appears.

Setup menu



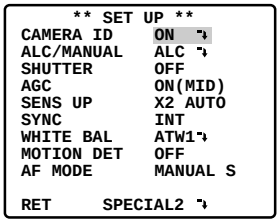
Camera setting menu



● Camera Identification (CAMERA ID)

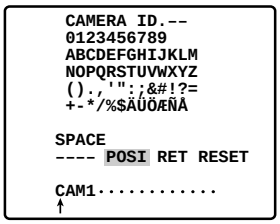
1. Move the cursor to CAMERA ID, and select ON to display the camera identification by using the joystick.
   The factory default setting is OFF.

2. Follow the steps below to edit the camera ID characters:
   2-1 Move the cursor to CAMERA ID and press the CAM (SET) key to display the character editing menu.
   2-2 Move the cursor to the character you want to edit or change by using the joystick, and press the CAM (SET) key. The selected character appears in the editing area.
   2-3 Repeat the steps above until all characters are edited.



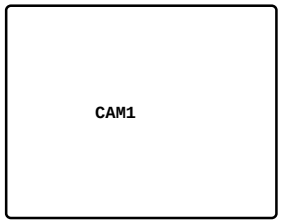
3. After editing the camera identification characters, follow the steps below to decide the position of the CAMERA ID.
   3-1 Move the cursor to POSI, and press the CAM (SET) key to display the ID position menu.
   3-2 Decide the position of the camera ID by using the joystick. Press the MON (ESC) key to fix the position, and return to the character editing menu.

Character editing menu

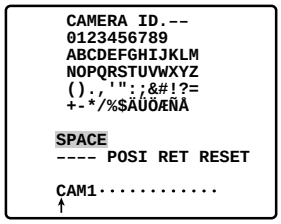


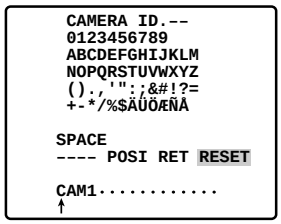
Notes:

- When you want the pointer to move to a specific character in the editing area, select a new character, and press the CAM (SET) key. This function allows you to edit or correct a specific character.
- To enter a blank space into the camera ID, move the cursor to SPACE, and press the CAM (SET) key.
- To erase all characters in the editing area, move the cursor to RESET, and press the CAM (SET) key.



- The CAMERA ID moves faster when the joystick is kept at the right or left for one second or more.
- Move the cursor to RET to return to the SET UP menu, and press the CAM (SET) key.

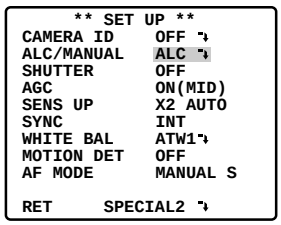




● Light Control Setting (ALC/MANUAL)

1. Display SET UP MENU on the monitor screen by referring to page 16.
2. Move the cursor to ALC/MANUAL and select ALC or MANUAL by using the joystick.
   The factory default setting is ALC.
   When you select ALC, set backlight compensation.
   Note: The backlight compensation submenu associated with this menu is described separately and should be set up after installing the camera at the site and observing the actual site picture.
3. When MANUAL is selected, quit the setup menu by pressing the MON (ESC) key. Press the OPEN or CLOSE key on the controller for iris adjustment.

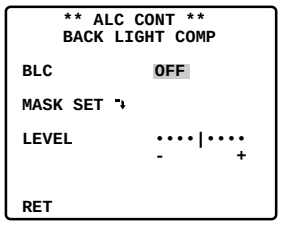
Camera setting menu

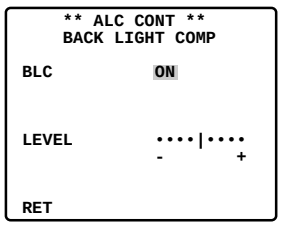


(1) ALC Mode with BLC ON

1. Press the CAM (SET) key after selecting ALC. The ALC CONT menu appears.
2. Move the cursor to the BLC and select ON.
3. If you want to adjust the video output level, move the "I" cursor for LEVEL. Adjust it to the desired level by using the joystick.
4. Move the cursor to RET and press the CAM (SET) key to return to the CAM SET UP menu. To return to the camera picture, press the F4 button.

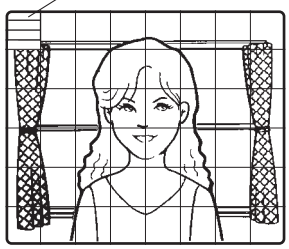
Backlight compensation menu

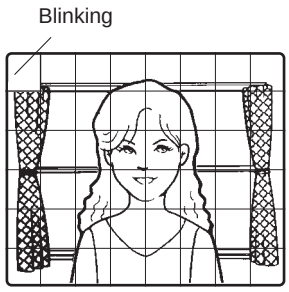


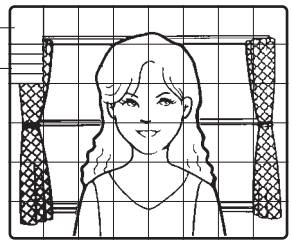


(2) ALC Mode with BLC OFF

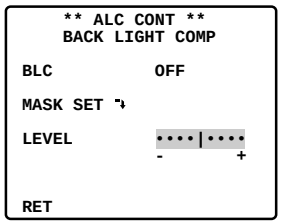
1. Move the cursor to BLC and select OFF. (When you select MANUAL, BLC is not available.) The MASK SET appears on the menu.
2. Move the cursor to MASK SET and press the CAM (SET) key. The 48 mask areas appear on the monitor screen. The cursor is blinking in the top left corner of the screen.
3. To mask an area where backlight is bright, move the cursor to the area and press the CAM (SET) key. The mask turns white. Repeat this procedure to mask the desired area.
4. To cancel a masked area, move the cursor to the area, and press the CAM (SET) key. To cancel all masking areas, press the F2 button of the WV-CU550B.
   For the WV-RM70, press the right and left switches simultaneously.

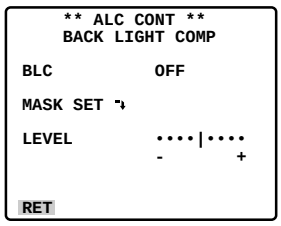






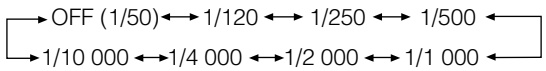
5. After masking is completed, press the MON (ESC) key. The 48 mask areas on the monitor screen disappear and the ALC CONT menu appears.
6. If you want to change the picture contrast, move the "I" cursor for LEVEL and adjust the level.
7. Move the cursor to RET and press the CAM (SET) key to return to the CAM SET UP menu.
   To return to the camera picture, press the F4 button.





● Shutter Speed Setting (SHUTTER)

1. Display SET UP MENU on the monitor screen by referring to page 16.
2. Move the cursor to SHUTTER and select the electronic shutter speed by using the joystick. The factory default setting is OFF.
   The electronic shutter speed changes as follows by using the joystick:



Camera setting menu

```
      ** SET UP **
CAMERA ID     OFF
ALC/MANUAL    ALC
SHUTTER       OFF
AGC           ON(MID)
SENS UP       X2 AUTO
SYNC          INT
WHITE BAL     ATW1
MOTION DET    OFF
AF MODE       MANUAL S

RET      SPECIAL2
```

● Gain Control (AGC)

1. Display SET UP MENU on the monitor screen by referring to page 16.
2. Move the cursor to AGC and select ON (LOW), ON (MID), ON (HIGH) or (OFF) by using the joystick.
   The factory default setting is ON (MID).
   ON (LOW): Selects lower auto gain control.
   ON (MID): Selects normal auto gain control.
   ON (HIGH): Selects higher auto gain control.
   OFF (Fixed Level): Disables the gain control function.

Camera setting menu

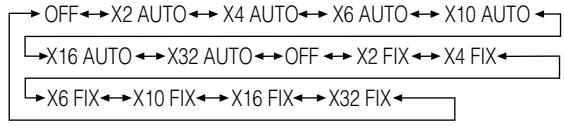
```
      ** SET UP **
CAMERA ID     OFF
ALC/MANUAL    ALC
SHUTTER       OFF
AGC           ON(MID)
SENS UP       X2 AUTO
SYNC          INT
WHITE BAL     ATW1
MOTION DET    OFF
AF MODE       MANUAL S

RET      SPECIAL2
```

Notes:

- Even if AGC is set to ON and if the noise reduction function is enabled, afterimages may be produced by shooting a moving object or by panning or tilting the camera.
- For more information, refer to Digital Noise Reduction on page 46.

● Electronic Sensitivity Enhancement (SENS UP)

1. Display SET UP MENU on the monitor screen by referring to page 16.
2. Move the cursor to SENS UP and select the desired electronic sensitivity enhancement mode by using the joystick.
   The factory default setting is X2 AUTO.
   The electronic sensitivity enhancement mode changes as follows by operating the joystick:



Camera setting menu

```
      ** SET UP **
CAMERA ID     OFF
ALC/MANUAL    ALC
SHUTTER       OFF
AGC           ON(MID)
SENS UP       X2 AUTO
SYNC          INT
WHITE BAL     ATW1
MOTION DET    OFF
AF MODE       MANUAL S

RET      SPECIAL2
```

Note: While the SENS UP function is selected, noise or spots may appear in the picture when the sensitivity of the camera is increased. This is a normal phenomenon.

● Synchronization (SYNC)

1. Display SET UP MENU on the monitor screen by referring to page 16.
2. Move the cursor to SYNC and select LL or INT by using the joystick.
   The factory default setting is INT.

Camera setting menu

```
      ** SET UP **
CAMERA ID     OFF
ALC/MANUAL    ALC
SHUTTER       OFF
AGC           ON(MID)
SENS UP       X2 AUTO
SYNC          INT
WHITE BAL     ATW1
MOTION DET    OFF
AF MODE       MANUAL S

RET      SPECIAL2
```

Important Notices:

1. The priority of SYNC modes is as follows:
   1. Multiplexed vertical drive (VD2) (highest priority)
   2. Line-lock (LL)
   3. Internal sync (INT) (lowest priority)
2. To use internal sync, select INT.
3. Whenever the vertical drive pulse (VD2) is supplied to the camera, the camera sync mode is automatically switched to the multiplexed vertical drive pulse (VD2) regardless of the selected sync mode.

Line-lock Sync Mode (LL)

1. Display SET UP MENU on the monitor screen by referring to page 16.

Camera setting menu

```
      ** SET UP **
CAMERA ID     OFF
ALC/MANUAL    ALC
SHUTTER       OFF
AGC           ON(MID)
SENS UP       X2 AUTO
SYNC          LL
WHITE BAL     ATW1
MOTION DET    OFF
AF MODE       MANUAL S

RET      SPECIAL2
```

2. Move the cursor to SYNC and select LL by using the joystick. LL sync mode is not available when the multiplexed vertical drive (VD2) pulse is supplied.

3. After selecting LL, press the CAM (SET) key.
   The SYNC menu appears on the monitor screen.

SYNC menu

```
      ** SYNC **

V PHASE

COARSE        1(1--16)

FINE          •|•••••••
              -       +


RET
```

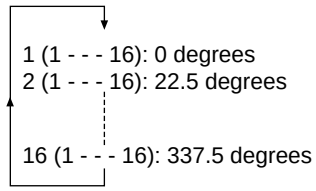
4. Supply the video output signal of the camera to be adjusted and the reference video output signal (for example, Camera 1) to a dual-trace oscilloscope.

5. Set the dual-trace oscilloscope to the vertical rate and expand the vertical sync portion on the oscilloscope.

6. Move the cursor to COARSE by using the joystick.

7. Match the vertical phases for both video output signals as closely as possible by using the joystick. The coarse adjustment can be incremented in steps of 22.5 degrees (16 steps) with the joystick.

```
      ** SYNC **

V PHASE

COARSE        1(1--16)

FINE          •|•••••••
              -       +


RET
```



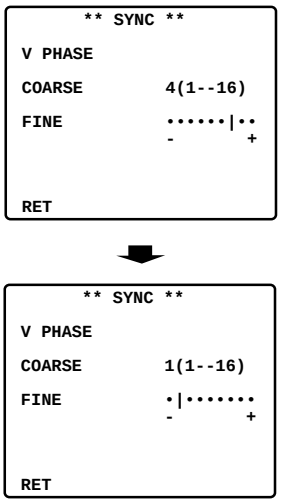
Note: After the 16th step, the adjustment returns to the first step.

8. Move the cursor to FINE by using the joystick.

9. Match the vertical phase for both video output signals as closely as possible by using the joystick.

Notes:

- When the "I" cursor reaches the "+" end, it jumps back to "–". At the same time, COARSE is incremented by one step to enable a continuous adjustment. The reverse takes place when the "I" cursor reaches the "–" end.
- When the joystick is kept at the right or left for one second or more, the "I" cursor moves quickly.
- To reset COARSE and FINE to the preset values, press the F2 button of the WV-CU550B. For the WV-RM70, press the Right and Left switches simultaneously. COARSE is preset to zero-crossing of the AC line phase.
- If the AC line phase contains spike noise, etc., the vertical phase of the video output signal may be disturbed.



● White Balance (WHITE BAL)

(1) Auto-Tracing White Balance Mode (ATW1/ATW2)

1. Display SET UP MENU on the monitor screen by referring to page 16.

2. Move the cursor to WHITE BAL and select ATW1 by using the joystick.
   The factory default setting is ATW1.
   The white balance of the camera is automatically adjusted.

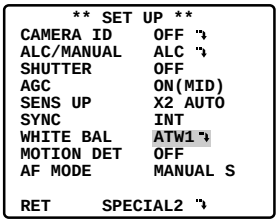
3. For fine adjustment of ATW1/ATW2, press the CAM (SET) key. The ATW1/ATW2 fine adjustment menu appears on the monitor screen.

4. Move the cursor to R.
   Obtain the optimum red gain by moving the joystick to the right or left.

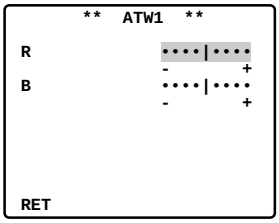
5. Move the cursor to B.
   Obtain the optimum blue gain by moving the joystick to the right or left.

6. Move the cursor to RET by using the joystick and press the CAM (SET) key to return to the SET UP menu.

Camera setting menu



ATW fine adjustment menu



(2) Automatic White Balance Control Mode (AWC)

1. Display SET UP MENU on the monitor screen by referring to page 16.

2. Move the cursor to WHITE BAL and select AWC → PUSH SW by using the joystick.

3. Press the CAM (SET) key to start the white balance setup. PUSH SW is highlighted to indicate that white balance is being set.

4. PUSH SW returns to normal when balance setting is completed.

5. For fine adjustment of the AWC, move the cursor to AWC and press the CAM (SET) key. The AWC fine adjustment menu appears on the monitor screen.

6. Move the cursor to R.
   Obtain the optimum red gain by moving the joystick to the right or left.

7. Move the cursor to B.
   Obtain the optimum blue gain by moving the joystick to the right or left.

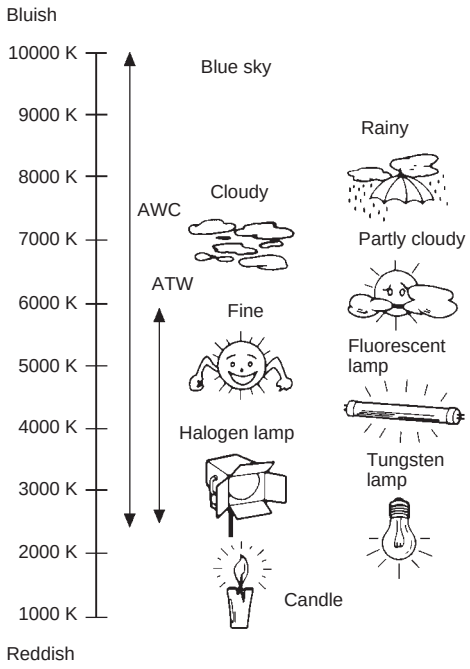
8. Move the cursor to RET by using the joystick and press the CAM (SET) key to return to the SET UP menu.

Camera setting menu

```
      ** SET UP **
CAMERA ID      OFF
ALC/MANUAL     ALC
SHUTTER        OFF
AGC            ON(MID)
SENS UP        X2 AUTO
SYNC           INT
WHITE BAL      AWC→PUSH SW
MOTION DET     OFF
AF MODE        MANUAL S

RET      SPECIAL2
```

AWC fine adjustment menu

```
        **  AWC  **

R                ••••|••••
                 -       +
B                ••••|••••
                 -       +

RET
```



● Motion Detector (MOTION DET)

Camera setting menu

```
      ** SET UP **
CAMERA ID     OFF
ALC/MANUAL    ALC
SHUTTER       OFF
AGC           ON(MID)
SENS UP       X2 AUTO
SYNC          INT
WHITE BAL     ATW1
MOTION DET    ON
AF MODE       MANUAL S

RET      SPECIAL2
```

1. Display SET UP MENU on the monitor screen by referring to page 16.

2. Move the cursor to MOTION DET and select ON or OFF by using the joystick.
   The factory default setting is OFF.

3. If ON is selected, press the CAM (SET) key.
   The MOTION DETECT menu appears.
   You can mask the areas in this menu.

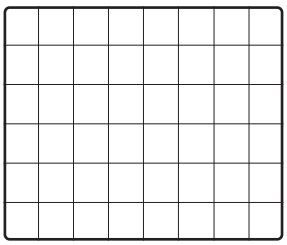
Motion detect menu

```
    ** MOTION DETECT **

LEVEL          ••••|••••
                -       +
DISPLAY MODE
       ALARM     OFF

MASK SET

RECOVER TIME     1MIN

RET
```

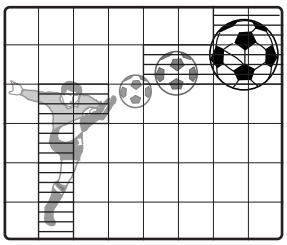
4. Move the cursor to MASK SET and press the CAM (SET) key.
   48 mask areas appear on the monitor screen.
   Refer to the Light Control Setting on page 37 for masking operations.

5. After masking areas, press the MON (ESC) key. The MOTION DETECT menu appears on the monitor screen.

6. Move the cursor to ALARM and select ON or OFF by using the joystick.
   The factory default setting is OFF.
   ON: The alarm signal is supplied while the display mode is activated.
   OFF: The alarm signal is not supplied while the display mode is activated.



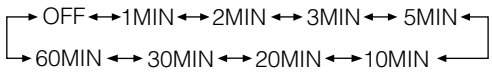
7. Move the cursor to DISPLAY MODE.
   Press the CAM (SET) key to see the present setting. The areas that detect the motions blink.



8. Move the cursor to LEVEL by using the joystick.
   Obtain the optimum detection level by moving the joystick to the right or left.

Note: Repeat the above procedures until you obtain the adjusted results.

9. Move the cursor to RECOVER TIME by using the joystick.
   The factory default setting is 1 MIN.
   You can select the following recover times.



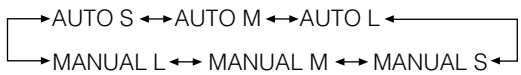
10. Move the cursor to RET and press the CAM (SET) key to return to SET UP.

Important Notices:

- The motion detection should meet the following conditions.
  1) The picture size on the screen should be larger than 1/48 of the actual picture size.
  2) The contrast ratio between the object and the background picture should be more than 5 % at the maximum detection level.
  3) The time it takes the object to move from one end of the screen to the other should be more than 0.1 seconds.
- Also under the following conditions, mask or adjust the detection level to prevent malfunction.
  1) When leaves, or curtains, etc., are swayed by the wind.
  2) When a picture has a high noise content due to low light conditions.
  3) When the object is illuminated by lighting equipment that constantly turns on and off.
- The alarm signal will take approx. 0.2 seconds to reach the alarm terminal of the VTR, after the camera detects the object.
  Because the alarm signal is multiplexed on the video signal it may be mistakenly interpreted by other video equipment as a time code signal. Therefore, when this camera is not used in a Panasonic Intelligent CCTV System, select OFF to prevent the above from occurring.
- The motion detection function is not designed specifically for prevention of theft, fire, etc.

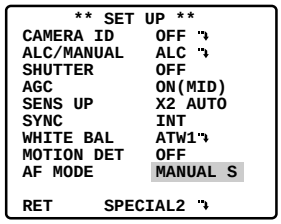
● Auto Focus Setting (AF MODE)

1. Move the cursor to AF MODE, and select the following mode by moving the joystick to the right or left.
   The factory default setting is MANUAL S.
   S, M and L stand for Small, Middle and Large areas respectively in the centre of a scene that are used for sensing sharpness in auto-focusing.



   MANUAL S, M, L: Auto focus is activated only when the AF key on the controller is pressed.
   AUTO S, M, L: Auto focus is activated automatically while the pan, tilt or zoom operation is manually performed. These may be selected in the same way as MANUAL by pressing the AF key on the controller.

Camera setting menu



2. To confirm auto-focus operation, press CAM (SET) key.

Notes:

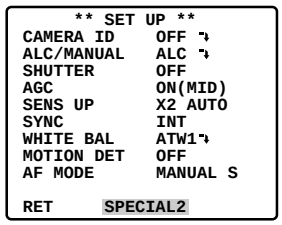
- When the electronic sensitivity enhancement (SENS UP) is activated except in the x2 FIX or x2 AUTO mode, this function is automatically set to MANUAL (S, M, L).
- The auto focus lens does not function properly in the AUTO mode after using the WIDE lens.
- The auto focus lens may not function properly in the AUTO mode under the following conditions.
  1. Dirt or water on window glass.
     The auto focus may focus on the dirt or water.
  2. Low lighting or illumination.
  3. Bright objects or high intensity objects.
  4. Single colour object such as a white wall or fine felt
  5. No centre objects and sloping objects
  6. Far and near objects on the screen

● Special 2 Menu (SPECIAL2)

This menu lets you adjust and set up the picture quality to meet your requirements.

- Display SET UP on the monitor screen by referring to page 16.
- Move the cursor to SPECIAL2 and press the F2 button of the WV-CU550B. The special menu appears on the monitor screen.
  For the WV-RM70, keep pressing the Right and Left switches simultaneously for 2 seconds or more.

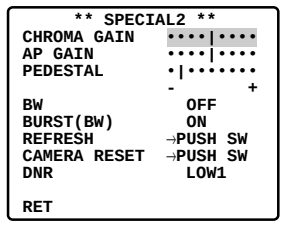
Camera setting menu



(1) Chroma Level Setting (CHROMA GAIN)

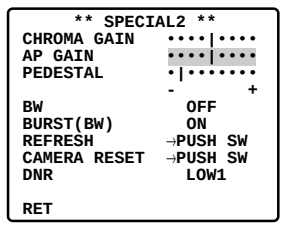
1. Move the cursor to CHROMA GAIN. The "I" cursor is highlighted.
2. While observing the vectorscope or colour video monitor, adjust the chroma level by moving the joystick to the right or left.
   To reset the level to the factory default setting, press the F2 button of the WV-CU550B.
   For the WV-RM70, keep pressing the Right and Left switches simultaneously for 2 seconds or more.

Special 2 menu



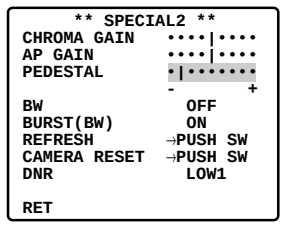
(2) Aperture Level Setting (AP GAIN)

1. Move the cursor to AP GAIN. The "I" cursor is highlighted.
2. While observing the video monitor, adjust the aperture level by moving the joystick to the right (sharp) or left (soft).
   To reset the level to the factory default setting, press the F2 button of the WV-CU550B.
   For the WV-RM70, keep pressing the Right and Left switches simultaneously for 2 seconds or more.



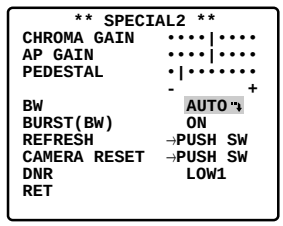
(3) Pedestal Level Setting (PEDESTAL)

1. Move the cursor to PEDESTAL. The "I" cursor is highlighted.
2. While observing the waveform monitor/oscilloscope or video monitor, adjust the pedestal level (black level) by moving the joystick to the right (high, bright) or left (low, dark).
   To reset the level to the factory default setting, press the F2 button of the WV-CU550B.
   For the WV-RM70, keep pressing the Right and Left switches simultaneously for 2 seconds or more.

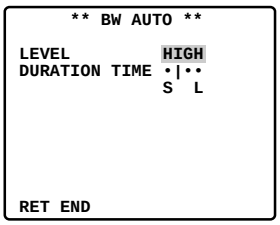


(4) Black and White Setting (BW)

1. Move the cursor to BW and select AUTO, ON or OFF by moving the joystick to the right or left. Factory default setting: OFF.
   AUTO: The camera selects the black and white mode if the picture is dark, or the colour mode if the picture is bright enough.
   ON: The black and white mode is selected.
   OFF: The color mode is selected.
   Note: Selecting the colour mode is disabled if ALARM IN 4 is set to B/W on the Special 1 menu.

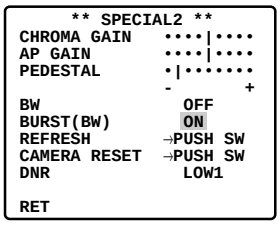


2. If you have selected AUTO, press the CAM (SET) key to open the BW AUTO submenu.



3. Select HIGH or LOW for the threshold level at which the camera automatically switches to BW or colour mode. Default: HIGH
   The illuminance shown below is based on the assumption that the camera is used in an area lit by halogen lamps, and that AGC on the menu is set to MID.
   HIGH: approximately 6 lux
   LOW: approximately 2.5 lux
   Note: When near-infrared lamps are used, the image may be displayed out of focus and mode switching may not perform automatically.

4. Move the I cursor to set DURATION TIME. Default: 30 seconds
   The camera determines whether to switch the mode when the time set for holding a picture motionless on the screen has elapsed.
   Available duration times: (S) 10 s ↔ 30 s ↔ 60 s ↔ 300 s (L)
   Note: A pan/tilt, zoom or focus operation will restart the holding time.



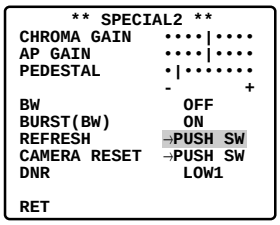
(5) Black Burst Setting [BURST (BW)]

Move the cursor to BURST (BW) and select ON or OFF by moving the joystick to the right or left. Default: ON.

ON: The burst signal is supplied along with the black and white composite video.

OFF: The burst signal is not output.

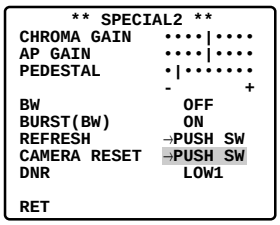
Note: It is recommended to select ON usually.



(6) To Restore the Camera Default Position (REFRESH)

Move the cursor to REFRESH by using the joystick and press the F2 button of the WV-CU550B.

For the WV-RM70, WV-CU360 or WV-CU161, keep pressing the Right and Left switches simultaneously for 2 seconds or more.



(7) Camera Resetting (CAMERA RESET)

Move the cursor to CAMERA RESET by using the joystick and press the F3 button of the WV-CU550B.

The camera is reset to the factory default settings.

For the WV-RM70, keep pressing the Right, Left and Set switches simultaneously for 2 seconds or more. For the WV-CU360 or WV-CU161, keep pressing the Right and Left switches and the numeric button 5 simultaneously for 2 seconds or more.

(8) Digital Noise Reduction (DNR)

DNR may be used to improve quality under low light conditions. There are 4 levels of DNR, which may be selected depending on local site conditions. Factory default setting: LOW1

You may need to try different settings to find the most suitable conditions for your application.

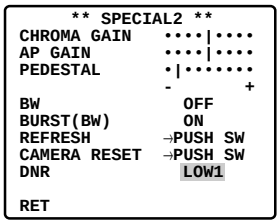
Move the cursor to DNR and select LOW1, LOW2, HIGH1 or HIGH2 by moving the joystick to the right or left.

LOW1: DNR level is low. The after-image remains.

LOW2: DNR level is low. The after-image is reduced.

HIGH1: DNR level is high. The after-image remains.

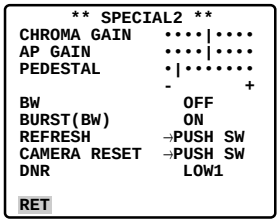
HIGH2: DNR level is high. The after-image is reduced.



(9) To Close the SPECIAL2 Menu

Move the cursor to RET and press the CAM (SET) key.

The setup menu appears on the monitor screen.



Reset to the Factory Default Settings

Any of the above settings plus the ALC/MANUAL level control and phase adjustments can be reset to the factory default settings by placing the cursor over the desired mode and then pressing the F2 button of the WV-CU550B.

For the WV-RM70, keep pressing the Right and Left switches simultaneously for 2 seconds or more.

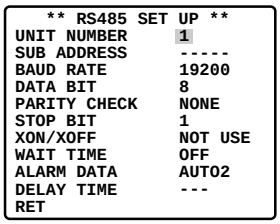
■ RS485 Setup

● Initial Camera Communication Parameters

In an RS485 chain, the matrix switcher, PC, controllers and cameras should be set to the same protocol and parameters for communication. Confirm the system protocol and parameters prior to setting the communication parameters for the camera.

The initial communication parameters for WV-CW860 and WV-CW864E are shown on the RS485 setup menu below. Other than the on-screen setup parameters, the 4-bit DIP switch may be used to select 2-line (Half Duplex) or 4-line (Full Duplex) communication.

RS485 Setup menu



● Changing the Camera Communication Parameters

You can remotely control this camera by using a specified extension unit such as a computer with a modem.

1. Display the SET UP MENU. Move the cursor to RS485 SET UP and press the CAM (SET) key. The RS485 SET UP menu appears on the monitor.
2. Move the cursor to the item and select the parameter by moving the joystick to the right or left.

Unit Number (UNIT NUMBER)
Displays the unit number set by the DIP switch. If the switch is set to 1-96, select a number by moving the joystick to the right or left. In an RS485 chain each unit must have a unique number.
Factory default setting: 1. See INSTALLATION for DIP switch setting.

RS485 Setup menu

```
   ** RS485 SET UP **
UNIT NUMBER      1
SUB ADDRESS      -----
BAUD RATE        19200
DATA BIT         8
PARITY CHECK     NONE
STOP BIT         1
XON/XOFF         NOT USE
WAIT TIME        OFF
ALARM DATA       AUTO2
DELAY TIME       ---
RET
```

Sub Address (SUB ADDRESS)
Do not set.

Baud Rate (BAUD RATE)
Specifies the transmission speed (2 400, 4 800, 9 600, 19 200 bit per second) for the RS485 communication. The factory default setting is 19 200.

Data Bit (DATA BIT)
Specifies the number of data bits (7 or 8 bits) for the RS485 communication. The factory default setting is 8.

Parity Check (PARITY CHECK)
Specifies the parity check mode (NONE, ODD, EVEN). The factory default setting is NONE.

Stop Bit (STOP BIT)
Specifies the number of stop bits (1 or 2 bits). The factory default setting is 1.

X ON/X OFF (X ON/X OFF)
Specifies whether to apply flow control or not (USE or NOT USE). The factory default setting is NOT USE.

Wait Time (WAIT TIME)
Specifies the time to wait until retrying after confirming that no data is received from the controller.
(OFF: no retry, 100, 200, 400, 1 000 ms).
The factory default setting is OFF.

Alarm Data (ALARM DATA)
Specifies the alarm transmission mode depending on the protocol selected by the 8-bit DIP switch.
POLLING: Transmits the alarm data in response to requests from the controller.
AUTO 1: Transmits the alarm data each time an alarm signal is received by the camera.
AUTO 2 (Default): Transmits alarm data at intervals of 5 seconds.

Delay Time (DELAY TIME)
Specifies the time to transmit the acknowledge request when communicating on a 2-line connection.
[----, 100 ms] Factory default setting: ---- (no set).
This menu appears only when a 2-line communication is used. Make sure to be 100 ms when connecting the camera with the WJ-FS616 Video Multiplexer or Matrix Switcher WJ-SX350 in a 2-line communication system.

The settings become effective with the closing of SET UP MENU.
Note: Set the same parameters for the cameras, controllers and personal computers in an RS485 chain.

INSTALLATION

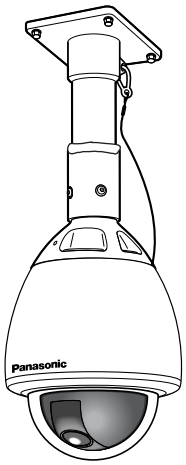
Precautions

- The following steps of installation and connection work should be done by qualified service personnel or system installers and should conform to all local codes.
- Be sure to switch the camera off before installation and connection.
- Do not install the camera near the air outlet of an air conditioner.

■ Mounting the Camera

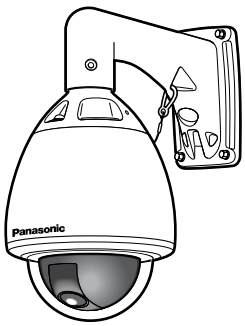
Ceiling mount

The figure shows an example of the camera mounted on a ceiling with a locally procured bracket.
Refer to the instructions included with the bracket for filling gaps and holes with waterproof material.



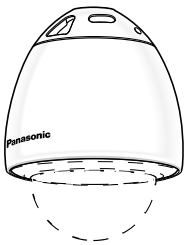
Wall mount

The figure shows an example of the camera mounted on a wall with the optional WV-Q110E Wall Mount Bracket. See instructions included with the optional bracket.



Sun Shield

Use the optional WV-7176E Sun Shield to protect the camera from direct sunlight. See instructions included with the sun shield.



1. Preparations

(1) Procure a ceiling mount bracket.

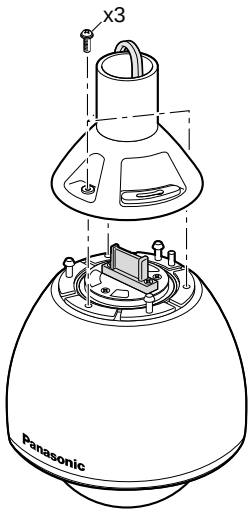
(2) Installation Surface

CAUTION: Consult an expert on the load bearing capacity of the installation surface and structure. If the surface is not strong enough, the camera may fall down. Refer to the product specifications for weights.

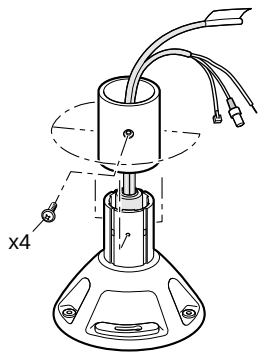
Prepare appropriate hardware (e.g. wall nuts, anchor bolts, etc.) for fixing on the installation surface.

2. Disassembling the Camera

(1) Remove the upper base from the camera by loosening 3 screws. Turn the upper base and separate it.

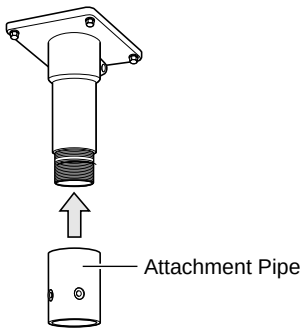


(2) Remove the attachment pipe from the upper base by loosening 4 screws.



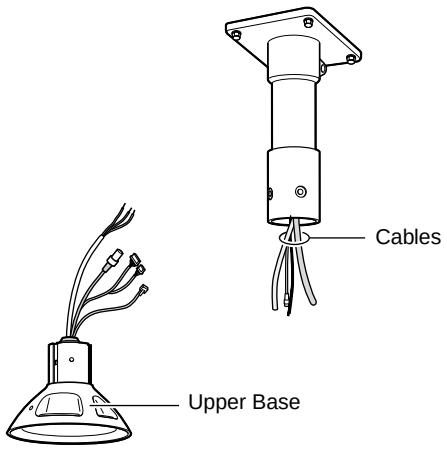
3. Mounting the Bracket

(1) Fix the bracket to the installation surface using appropriate bolts, nuts or the like (not supplied).

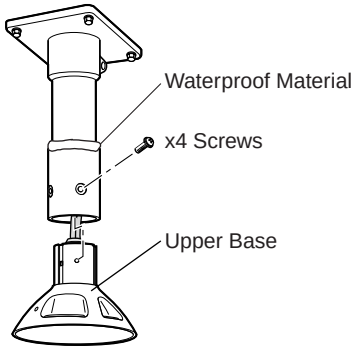


(2) Fix the attachment pipe to the bracket.

(3) Thread cables through the bracket. Connect cables, referring to CONNECTIONS.

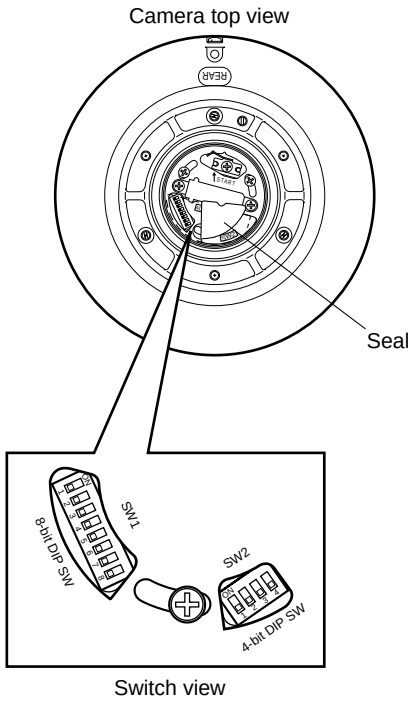


(4) Fix the upper base to the attachment pipe using 4 screws, and fill the gap between the bracket and attachment pipe with waterproof material such as silicon clay. See instructions of the bracket for details.



4. Setting the Switches

The 8-bit DIP switch has two functions. It is used to restore the factory default settings and to specify the unit number. Before setting, peel off the seal covering the switch holes. After setting the switch, replace the seal. The 4-bit DIP switch selects termination ON/OFF and half/full duplex for RS485 communication. The switch settings are read into the camera when the power is turned on. After changing the switch settings, be sure to turn the power off, then turn it back on again. Switch positions and functions are shown below.



RS485 Parameter Setup

The selected protocol, communication parameters, and set unit numbers are read into the camera when the power is switched on.

(1) Switch off the camera.

(2) Set the switch as shown in the table below.

(3) Set the unit number with the DIP switch (see the next page).

(4) Switch on the camera to read in the changed switch settings.

Note: The changed communication parameters are displayed on the RS485 SETUP menu after the camera has been switched on.

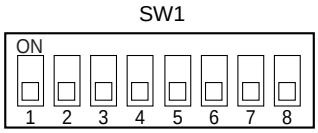
Switch position	Returns to the factory default settings.
ON 1 2 3 4 5 6 7 8	

Switch position	Parameter selection			
	Baud rate	Data bit	Parity check	Stop bit
ON 1 2 3 4 5 6 7 8	19 200	8	None	1
ON 1 2 3 4 5 6 7 8	9 600	8	None	1
ON 1 2 3 4 5 6 7 8	4 800	8	None	1

Unit Number

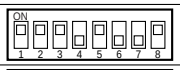
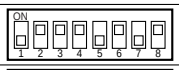
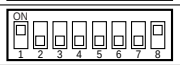
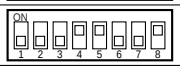
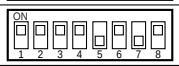
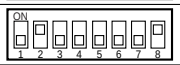
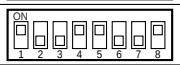
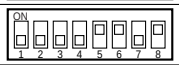
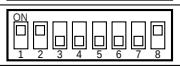
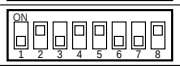
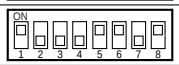
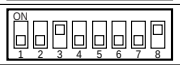
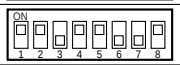
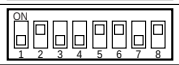
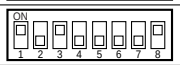
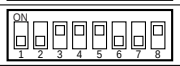
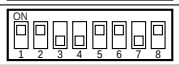
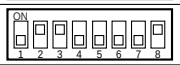
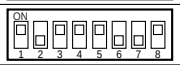
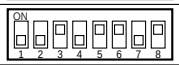
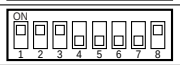
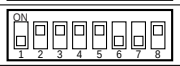
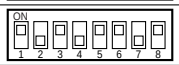
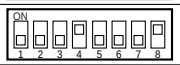
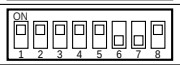
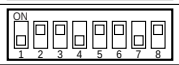
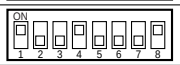
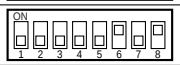
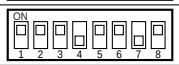
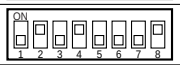
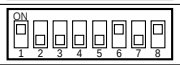
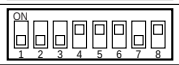
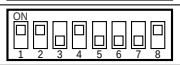
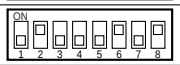
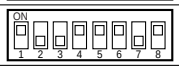
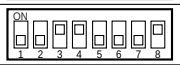
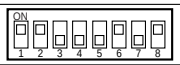
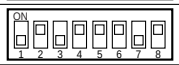
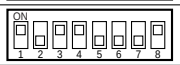
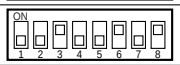
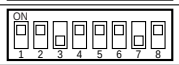
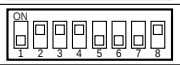
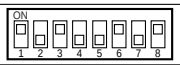
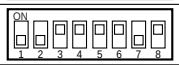
Switch 1, an 8-bit DIP switch, specifies the unit number or restores the factory default settings when using the Panasonic protocol.

When the switch position corresponding to the unit number 1-96* is selected, setting should be made on the RS485 SET UP menu (see page 47).



8-bit DIP SW

For Panasonic's Protocol

Switch position	Unit number	Switch position	Unit number	Switch position	Unit number
	1-96*		23		46
	1		24		47
	2		25		48
	3		26		49
	4		27		50
	5		28		51
	6		29		52
	7		30		53
	8		31		54
	9		32		55
	10		33		56
	11		34		57
	12		35		58
	13		36		59
	14		37		60
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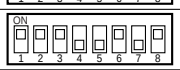
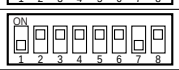
	16		39		62
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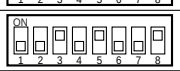
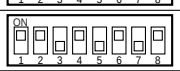
	20		43		66
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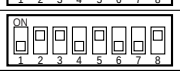
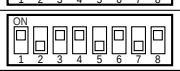
	22		45		68

(to be continued)

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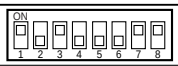
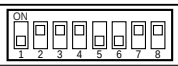
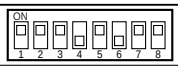
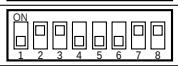
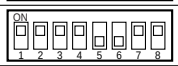
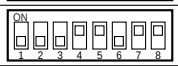
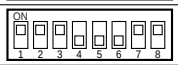
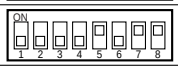
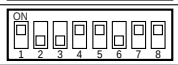
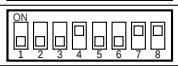
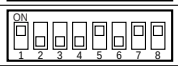
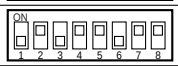
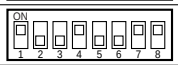
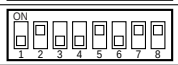
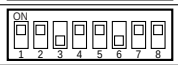
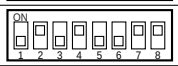
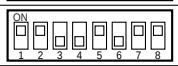
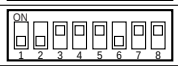
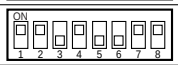
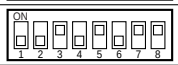
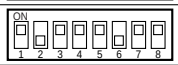
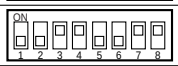
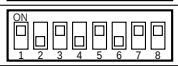
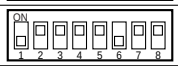
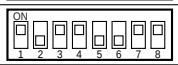
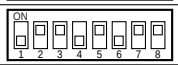
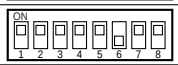
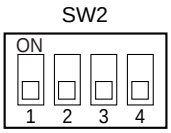
	69		78		87
	70		79		88
	71		80		89
	72		81		90
	73		82		91
	74		83		92
	75		84		93
	76		85		94
	77		86		95

RS485 Setting

The 4-bit DIP switch is used for RS485 termination.



	BP 1	Function
Switch position	ON	Termination ON
	OFF	Termination OFF *

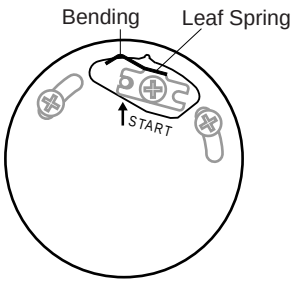
	BP 2	BP 3	BP 4	Function
Switch position	ON	ON	ON	Half duplex (2 line)
	OFF	OFF	OFF	Full duplex (4 line) *

Notes:

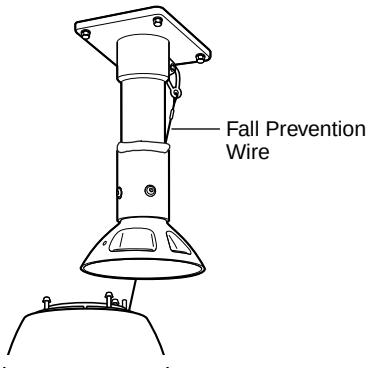
- Defaults are marked with *.
- BP stands for Bit Position.
- Full duplex is not available in a daisy chain connection. (Panasonic system controllers only)

5. Mounting the camera

(1) Aim the “START” arrow at the bent portion of the leaf spring.

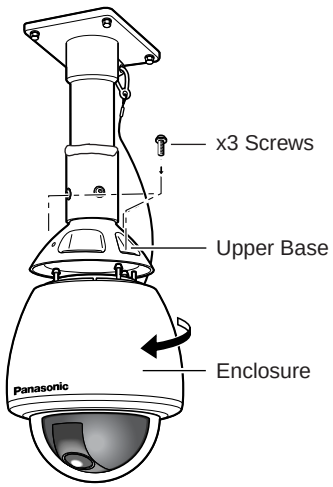


(2) Be sure to hook the fall prevention wire into the bracket.



(3) Fix the camera to the upper base.

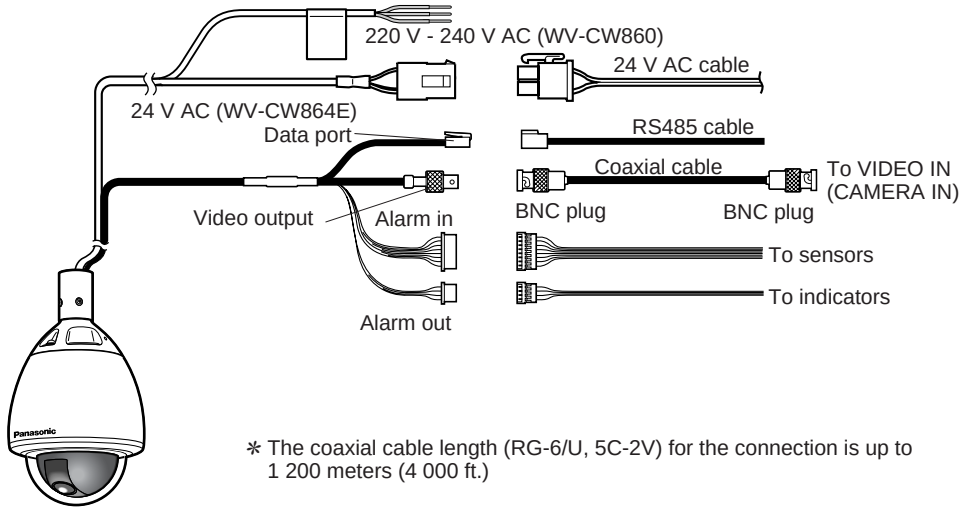
- Move the camera up so that its guide pins fit into the guide holes of the upper base.
- Turn the camera counter-clockwise to the end, viewed from the bottom.
- Fasten 3 screws.



CONNECTIONS

Precautions

- The following connections should be made by qualified service personnel or system installers in accordance with all local codes.
- See the reverse side of the cover page for mains lead connection.



* The coaxial cable length (RG-6/U, 5C-2V) for the connection is up to 1 200 meters (4 000 ft.)

Note: When powered up, the unit performs a self-check (including one panning, tilting, zooming and focusing operation).

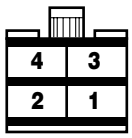
• 24 V AC Power Supply Connection

Recommended wire gauge sizes for 24 V AC line

Copper wire size (AWG)		#24 (0.22mm²)	#22 (0.33mm²)	#20 (0.52mm²)	#18 (0.83mm²)
Length of cable (approx.)	(m)	20	30	45	75
	(ft)	65	100	160	260

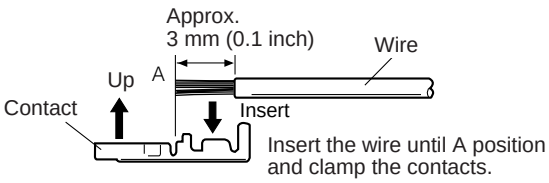
Accessory Connector Information

Pin no.	Power source
1	24 V AC LIVE
2	24 V AC NEUTRAL
3	Ground
4	Not use

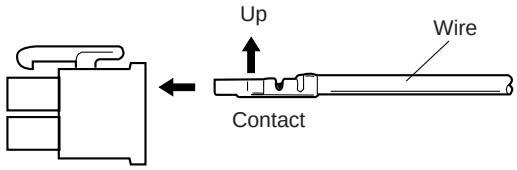


How to Assemble the Cable with the Accessory Connector

Strip back the cable jacket approx. 3 mm (0.1 inch) and separate the individual conductors.



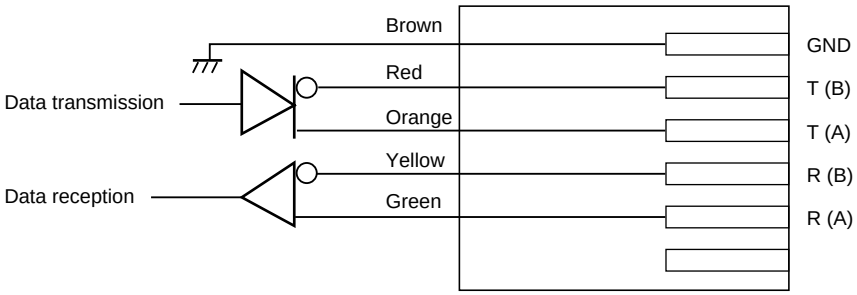
Prepare the individual conductors for clamping. Use MOLEX band tool part number 57027-5000 (for UL-Style Cable UL1015) or 57026-5000 (for UL-Style UL1007) for clamping the contacts.
After clamping the contacts, push them into the proper holes in the accessory connector of this camera until they snap in place.



CAUTIONS

- Shrinking the cable-entry seal is a one-time procedure. Do not shrink the cable-entry seal until it has been ascertained that the unit is functioning.
- CONNECT THIS TO 24 V AC CLASS 2 POWER SUPPLY ONLY.

- **RS485 Connection**



Note:

Use the cable that is described below for RS485 site communication.

- Shielded, twisted pair cable
- Low impedance
- Wire gauge size is thicker than AWG #22 (0.33 mm^2).

- **ALARM IN Connections**

An 8-pin and a 4-pin harness are supplied with the camera as standard accessories. Connect external sensors to this connector. Input specifications are low-active, non-voltage contact (ON when active) or open collector (Low when active). The table below shows wire colours versus pin functions.

Alarm IN (8-pin)

Wire colour	Function
Black	IN 1
Brown	GND
Red	IN 2
Orange	GND
Yellow	IN 3
Light blue or green	GND
Blue	IN 4
Purple	GND

- **ALARM OUT Connections**

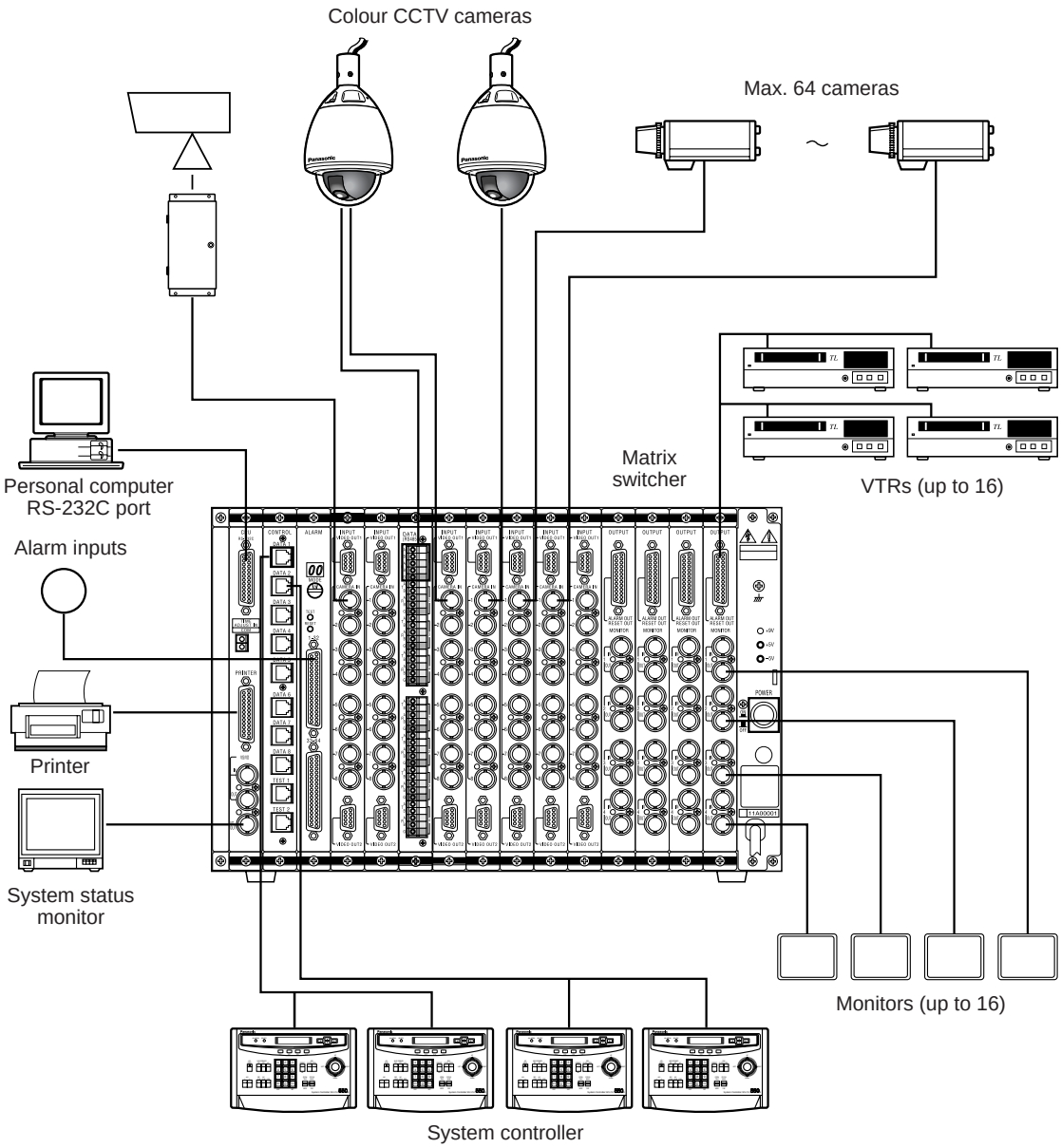
Connect an external device, for example, a buzzer or lamp, to this connector. Output specifications are low-active, open-collector and a drive capacity of 16 V DC 100 mA maximum. The table below shows wire colours versus pin functions.

Alarm OUT (4-pin)

Wire colour	Function
Grey	OUT 1
White	GND
Pink	OUT 2
Yellow green or light blue	GND

Note: Use a relay if the voltage or current of the connected device exceeds the ratings.

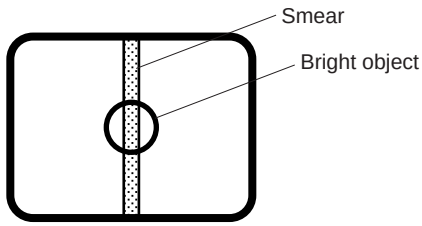
SYSTEM CONNECTIONS



Note: When any peripheral is turned off and turned on again, the camera is also turned off and turned back on.

PREVENTION OF BLOOMING AND SMEAR

When the camera is aimed at a bright light, such as a spotlight, or a surface that reflects bright light, smear or blooming may appear. Therefore, the camera should be operated carefully in the vicinity of extremely bright objects to avoid smear or blooming.



SPECIFICATIONS

	WV-CW864E	WV-CW860

Effective pixels		752 (H) x 582 (V)
Scanning area		3.65 mm (H) x 2.71 mm (V), 1/4”
Synchronization		internal/line-lock / multiplexed vertical drive (VD2)
Horizontal scanning frequency		15.625 kHz
Vertical scanning frequency		50.00 Hz
Video output		1.0 V[p-p] PAL composite/75 Ω
Horizontal resolution		more than 480 lines at centre (C/L), 570 lines at centre (B/W)
Vertical resolution		more than 400 lines at centre
Signal-to-noise ratio		50 dB (AGC OFF, weight on)
Minimum illumination		0.5 lx (0.05 foot-candle) C/L, 0.03 lx (0.003 foot-candle) B/W at SENS UP x 2 (AGC HIGH)
Zoom speed		approx. 4.5 s (TELE/WIDE) in manual mode
Focus speed		approx. 6.0 s (FAR/NEAR) in manual mode
Iris		automatic (open/close is possible)/manual
Maximum aperture ratio		1 : 1.6 (WIDE) - 3.0 (TELE)
Focal length		3.79 - 83.4 mm
Angular field of view	H	2.6° - 51.7°
	V	2.0° - 39.9°
Electronic shutter		1/50 (OFF), 1/120, 1/250, 1/500, 1/1 000, 1/2 000, 1/4 000, 1/10 000 s
AGC		ON (LOW)/ON (MID)/ON (HIGH)/OFF
SENS UP		max 32 times, AUTO/FIX
BLC		selectable ON/OFF (SETUP MENU)
Zoom ratio		x 22 +digital zoom x10
Iris range		F1.6 - 22, CLOSE

Power source	24 V AC, 50 Hz	220 V - 240 V AC, 50 Hz
Power consumption	18 W, (59 W at heater ON)	18 W, (61 W at heater ON)
Ambient operating temperature	–30 °C - +50 °C (–22 °F - 122 °F) * See note.	
Dimensions	200 mm (D) x 360 mm (H) (7-7/8” (D) x 14-3/16” (H))	
Weight	approx. 5 kg (11 lbs)	

*** Note:** The picture quality and camera performance are not guaranteed until the inside temperature rises up to –10˚C (14°F).

Auto focus	MANUAL/AUTO
Auto mode	OFF/SEQ/SORT/AUTO PAN/PATROL
Auto pan key	SEQ/SORT/AUTO PAN/PATROL PLAY
Digital flip	ON/OFF
Camera ID	preset ID, camera ID, area title : up to 16 characters
Motion DET	ON/OFF
Alarm IN	4 inputs (ALARM IN 1 - 4)
Alarm OUT	2 outputs (ALARM/AUX1, B/W/AUX2)
B/W mode	AUTO/ON/OFF
Privacy zone	ON/OFF, up to 8 zones
Proportional PAN/TILT	ON/OFF
Patrol	LEARN/PLAY/STOP, up to 30 seconds
Cleaning	ON/OFF
Image Hold	ON/OFF

Panning range	360 ° endless
Panning angle setting	possible (in auto-pan mode)
Panning mode	manual/sequential position/sort position/auto pan
Panning speed	manual : approx. 0.1 °/s - 120 °/s 8-steps/64-steps sequence position : maximum approx. 300 °/s
Tilting range	0 ° to 180 °
Tilting mode	manual/sequential position/sort position
Tilting speed	manual : approx. 0.1 °/s - 120 °/s. 8-steps/64-steps sequential position : maximum approx. 300 °/s
Controls	pan/tilt, lens, 64 preset positions, home position

Weights and dimensions indicated are approximate.
Specifications are subject to change without notice.

ACCESSORIES

Alarm in cable ..... 1 pc.
Alarm out cable ..... 1 pc.
Connector for 24 V AC (only for WV-CW864E) ..... 1 pc.

OPTIONAL ACCESSORIES

Wall mount bracket WV-Q110E
Sun shield WV-7176E

APPENDIX

Shortcuts

Shortcut operations are available for controllers having the CAM FUNCTION key. Entering from one to three digits using the numeric key(s) and pressing the CAM FUNCTION key will create a shortcut to the respective functions. The CAM FUNCTION key is abbreviated as [CAM FUNC] in the table below.

Function	Key	Function	Key
Selecting a PRESET position	From #1 to #64	EL-ZOOM	
#1	[1] + [CAM FUNC]	On	[9] + [8] + [CAM FUNC]
#10	[1] + [0] + [CAM FUNC]	Off	[9] + [9] + [CAM FUNC]
#64	[6] + [4] + [CAM FUNC]	RESTART	
AUTO PAN		Begin	[1] + [0] + [0] + [CAM FUNC]
ON	[6] + [5] + [CAM FUNC]	Memorize PRESET	From #1 to #64**
OFF	[6] + [6] + [CAM FUNC]	Position #1	[1] + [0] + [1] + [CAM FUNC]
Speed Up	[6] + [7] + [CAM FUNC]	Position #10	[1] + [1] + [0] + [CAM FUNC]
Speed Down	[6] + [8] + [CAM FUNC]	Position #64	[1] + [6] + [4] + [CAM FUNC]
Setting Start Point	[6] + [9] + [CAM FUNC]	PATROL	
Setting End Point	[7] + [0] + [CAM FUNC]	PLAY	[1] + [6] + [5] + [CAM FUNC]
Setting PAN Reverse	[7] + [4] + [CAM FUNC]	STOP	[1] + [6] + [6] + [CAM FUNC]
AUTO MODE		LEARN (Start)	[1] + [6] + [7] + [CAM FUNC]
MODE Off	[7] + [1] + [CAM FUNC]	IRIS	
SEQ On	[7] + [2] + [CAM FUNC]	Open	[1] + [6] + [9] + [CAM FUNC]
SORT On	[7] + [3] + [CAM FUNC]	Close	[1] + [7] + [0] + [CAM FUNC]
ENDLESS PAN		EL-SHUTTER	
On	[7] + [6] + [CAM FUNC]	On	[1] + [7] + [1] + [CAM FUNC]
Off	[7] + [7] + [CAM FUNC]	Off	[1] + [7] + [2] + [CAM FUNC]
DIGITAL FLIP		Speed Up	[1] + [7] + [3] + [CAM FUNC]
On	[7] + [8] + [CAM FUNC]	Speed Down	[1] + [7] + [4] + [CAM FUNC]
Off	[7] + [9] + [CAM FUNC]	AGC	
PROP. PAN/TILT		On	[1] + [7] + [5] + [CAM FUNC]
On	[8] + [0] + [CAM FUNC]	Off	[1] + [7] + [6] + [CAM FUNC]
Off	[8] + [1] + [CAM FUNC]	SENS UP	
BLC		On	[1] + [7] + [7] + [CAM FUNC]
On	[8] + [4] + [CAM FUNC]	Off	[1] + [7] + [8] + [CAM FUNC]
Off	[8] + [5] + [CAM FUNC]	Up	[1] + [7] + [9] + [CAM FUNC]
AUTO FOCUS		Down	[1] + [8] + [0] + [CAM FUNC]
STOP AF On*	[8] + [6] + [CAM FUNC]	SENS UP AUTO	
STOP AF Off*	[8] + [7] + [CAM FUNC]	On	[1] + [8] + [1] + [CAM FUNC]
AF On (Activate)	[8] + [8] + [CAM FUNC]	Off	[1] + [8] + [2] + [CAM FUNC]
HOME POSITION		Up	[1] + [8] + [3] + [CAM FUNC]
Move to HOME	[8] + [9] + [CAM FUNC]	Down	[1] + [8] + [4] + [CAM FUNC]
B/W or C/L		LL SYNC phase	
B/W On*	[9] + [0] + [CAM FUNC]	INC	[1] + [8] + [5] + [CAM FUNC]
B/W Off*	[9] + [1] + [CAM FUNC]	DEC	[1] + [8] + [6] + [CAM FUNC]
B/W AUTO*	[9] + [2] + [CAM FUNC]	PAN	
CAMERA ID		180 ° turn	[1] + [8] + [7] + [CAM FUNC]
On	[9] + [3] + [CAM FUNC]	CLEANING	
Off	[9] + [4] + [CAM FUNC]	On	[1] + [8] + [8] + [CAM FUNC]
AREA TITLE		Off	[1] + [8] + [9] + [CAM FUNC]
NESW On	[9] + [5] + [CAM FUNC]	BW SW AUTO	
USER On	[9] + [6] + [CAM FUNC]	30 sec.	[1] + [9] + [0] + [CAM FUNC]
TITLE Off	[9] + [7] + [CAM FUNC]	60 sec.	[1] + [9] + [1] + [CAM FUNC]
		300 sec.	[1] + [9] + [2] + [CAM FUNC]
		600 sec.	[1] + [9] + [3] + [CAM FUNC]

Notes:

- Shortcut operations marked with * will change parameter settings only. Actual operation takes place when the conditions for the changed settings are met.
- When entering shortcuts marked with **, “NO REGS. ; FLIP ON” may appear on the monitor. Re-enter the shortcut.
- Shortcuts may be ignored while PAN/TILT, ZOOM or FOCUS is in operation.
- PATROL LEARN saves only [1] through [6]+[4], [1]+[6]+[9] and [1]+[7]+[0] in the memory.
- PATROL PLAY stops when a shortcut other than [1]+[6]+[9] or [1]+[7]+[0] is entered.

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